PACIFIC SALMON COMMISSION
JOINT TRANSBOUNDARY TECHNICAL COMMITTEE

SALMON MANAGEMENT AND ENHANCEMENT PLANS FOR THE STIKINE, TAKU AND ALSEK RIVERS, 2015

REPORT TCTR (15)-1

This plan was finalized at the March 12, 2015 meeting of the
Transboundary Technical Committee

April 2015

ACRONYMS

AABM	Aggregate Abundance Based Management
AC	Allowable Catch
ADF&G	Alaska Department of Fish and Game
ASL	Age, Sex, Length
BEG	Biological Escapement Goal
BLC	Base Level Catch
CAFN	Champagne & Aishihik First Nation
CPUE	Catch Per Unit of Effort
CTC	Chinook Technical Committee of the Pacific Salmon Commission
CWT	Coded-Wire Tag
DFO	Department of Fish and Oceans, Canada
DIPAC	Douglas Island Pink and Chum, Inc.
ESSR	Excess Salmon to Spawning Requirements
FN	First Nation
FSC	Food, Social, Ceremonial
GSI	Genetic Stock Identification
MR	Mark–Recapture
MSY	Maximum Sustained Yield
N_{MSY}	Spawning escapement goal point estimate
PSARC	Pacific Scientific Advice Review Committee of DFO
PSC	Pacific Salmon Commission
PST	Pacific Salmon Treaty
SCMM	Stikine Chinook Management Model
SEAK	Southeast Alaska
SEPP	Stikine Enhancement Production Plan
SFMM	Stikine Forecast Management Model
SMM	Stikine Management Model
SPA	Scale Pattern Analysis
SW	Statistical Week
TAC	Total Allowable Catch
TTC	Transboundary Technical Committee of the Pacific Salmon Commission
THA	Terminal Harvest Area
TIFN	Tahltan & Iskut First Nation
TRTFN	Taku River Tlingit First Nation
USFS	United States Forest Service

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INTRODUCTION

Management of transboundary river salmon to achieve conservation, allocation and enhancement objectives, as stipulated by the Pacific Salmon Treaty (PST), requires a cooperative approach by Canada and the United States. It is important that both Parties have a clear understanding of the objectives and agree upon procedures to be used in managing the fisheries, including the criteria upon which modifications of fishing patterns will be based. This document is intended to facilitate cooperative salmon management, stock assessment, research and enhancement on transboundary stocks of the Stikine, Taku, and Alsek rivers conducted by the Canadian Department of Fisheries and Oceans (DFO), the Tahltan and Iskut First Nations (TIFN), the Taku River Tlingit First Nation (TRTFN), the Champagne & Aishihik First Nation (CAFN), and the Alaska Department of Fish and Game (ADF&G).

This report contains, by river system and species, the 2015 salmon run outlooks, spawning escapement goals, a summary of harvest sharing objectives, and an outline of management procedures to be used during the 2015 fisheries. Numerical forecasts are presented for: Stikine River sockeye and large Chinook salmon and Taku River large Chinook salmon as required by the PST; Taku sockeye and coho salmon; and Alsek sockeye and Chinook salmon. Outlooks for other stocks are given qualitatively with reference to brood year escapement data where available. This report also contains joint plans for fry stocks and egg collections and a detailed list of proposed field projects for 2015, identifying agency responsibility and contacts for the various functions within the projects.

STIKINE RIVER

Chinook Salmon

Preseason Forecast

The bilateral preseason forecast for the Stikine River large Chinook salmon terminal run[1] is 30,200 fish. Large Chinook salmon are greater than 659 mm mid-eye to fork of tail length. The forecast generated by the Stikine River Chinook salmon forecast model produced a terminal run size estimate of 40,634 fish. Due to the preseason forecast consistently overestimating the actual run size in recent years, this forecast was reduced by 26% to account for the average forecast error over the previous 5 years (based on data available at time of forecasting). Other considerations taken into account for reducing the model produced forecast are the poor precision for the age-4 Chinook salmon in 2014 and the general poor performance of Chinook salmon stocks throughout Alaska and northern B.C. in recent years.

Similar to 2005–2014, the 2015 forecast is based solely on the sibling forecast with no credence given to the stock-recruitment forecast. (Previous to 2005, the Chinook salmon forecast was based on the average of the sibling and stock-recruitment methodologies; however the stock recruitment component has been discarded due to poor performance.) The sibling forecast predicts the following components: the terminal return of age-5 fish based on the number of age-4 fish in 2014; the terminal return of age-6 fish based on the number age-5 fish in 2014; and the terminal return of age-7 fish based on the number of age-6 fish in 2014. The sum of the age-specific predictions (age 5 to age 7) generates an estimate of the terminal run.

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[1] The Stikine River large Chinook salmon terminal run size = total Stikine Chinook salmon run size minus the U.S. troll harvest of Stikine Chinook salmon outside District 108

The age-specific outlooks are based on the following linear regressions:

- age-4 in 2014 ($N_{age\text{-}4(y-1)}$) to predict the number of age-5 in 2015 ($N_{age\text{-}5(y)}$):

$$\mathbf{N_{age\text{-}5(y)} = 3.2039 * N_{age\text{-}4(y-1)} + 4{,}353} \qquad [1]$$

The correlation coefficient (r^2) of this relationship = 0.91, df=18;

- age-5 in 2014 ($N_{age\text{-}5(y-1)}$) to predict the number of age-6 in 2015 ($N_{age\text{-}6(y)}$):

$$\mathbf{N_{age\text{-}6(y)} = 0.6958 * N_{age\text{-}5(y-1)} + 4{,}486} \qquad [2]$$

The correlation coefficient (r^2) of this relationship = 0.81, df=18;

- age-6 in 2014 ($N_{age\text{-}6(y-1)}$) to predict the number of age-7 in 2015 ($N_{age\text{-}7(y)}$):

$$\mathbf{N_{age\text{-}7(y)} = 0..0211 * N_{age\text{-}6(y-1)} + 58} \qquad [3]$$

The correlation coefficient (r^2) = 0.23, df=18.

On average, the run consists of 8% age-4, 36% age-5 and 54% age-6 Chinook salmon; other ages include age-3 and age-7 which make up the remainder. The total estimated number of terminal Stikine Chinook salmon age-4 in 2014 was 5,608_fish; age-5 was 19,450_fish; and age-6 was 10,717_fish. Substituting these values into each of the respective equations [1] through [3] above and summing the results, yields a predicted terminal run of approximately 40,624 large Chinook salmon in 2015. The 2015 forecast of 40,624 fish was then reduced by 26% and rounded to the nearest hundred. This outlook, which constitutes a below average run size, does not include Chinook salmon of age-4 or less. The performance of the preseason forecast compared to postseason run size is detailed in Table 1.

Table 1 Stikine River large Chinook salmon terminal run preseason forecasts versus postseason run size estimates from 1996 to 2014, and the 2015 preseason forecast.

Year	Preseason Forecast [a]	Postseason Run Size [b]	Forecast Performance [c]
	Model Forecast		
1996[d]	32,747	34,203	-4%
1997[d]	37,662	33,978	11%
1998[d]	25,760	30,337	-15%
1999[d]	26,833	25,547	5%
2000[d]	42,049	32,675	29%
2001[d]	72,638	71,868	1%
2002[d]	50,530	57,570	-12%
2003	46,325	46,917	-1%
2004	65,877	62,137	6%
2005	80,258	87,767	-9%
2006	60,605	62,241	-3%

Table 1 *(continued)*.

Year	Preseason Forecast a	Postseason Run Size b	Forecast Performance c
	Model Forecast		
2007	37,355	35,954	4%
2008	46,100	33,619	37%
2009	31,928	16,468	94%
2010	22,900	19,615	17%
2011	30,000	19,796	52%
2012	40,800	29,911	36%
2013	32,032	21,720	48%
2014	37,656	29,323	28%
2015	40,624		
	Adjusted Forecast [e]		
2013	22,400	21,720	3.1%
2014	26,050	29,323	-11.2%
2015	30,200		

Notes
a) Preseason forecasts of large Chinook salmon terminal run size based on the sibling models.
b) Estimates of postseason large Chinook salmon terminal run size; 2002–2012 from TTC 2014 preliminary report; 1996–2001 based on inriver run size from the TTC report and an estimated U.S. marine catch based on avg h/r.
c) Forecast performance relative to the actual run size determined from postseason run reconstructions. Positive values indicate the forecast was higher than postseason run size estimates; negative values, the forecast was below postseason run size estimates.
d) Retrospective preseason forecasts.
e) Adjusted forecast using 5-year average percentage error.

Escapement Goals

The current MSY escapement goal point estimate (N_{MSY}) for above-border Stikine River large Chinook salmon is 17,400 fish with a range of 14,000 to 28,000 fish. Corresponding values for counts through the weir on the Little Tahltan are 2,700 to 5,300 with a point estimate of 3,300 (Bernard et al 2000). This drainage wide goal is subject to periodic review by the TTC. Based on the recent 10-year average, Little Tahltan River Chinook salmon represent 13% (Range; 3–34%) of the total spawning population.

Harvest Sharing Objectives

Provisions for harvest sharing and management of directed fisheries for Stikine River large Chinook salmon were successfully negotiated by the Transboundary Panel and implemented in 2005. These arrangements, with slight adjustments, were adopted through PST negotiations in 2008 and are in effect through 2018 (Paragraph 3(a) (3) of Annex IV, Chapter 1 of the PST).

Harvest sharing provisions were developed to acknowledge the traditional harvest in fisheries, referred to as base level catches (BLCs), which occurred prior to the new arrangements, these included: incidental harvests in Canadian and U.S. commercial drift gillnet fisheries, U.S. and Canadian sport fisheries, Canadian First Nation fishery, and the test fishery. For directed fisheries, the allowable catch (AC) will be calculated as follows:

AC = Terminal run - Base terminal run (BTR); **[4]**

where: BTR = escapement target + test fishery BLC + U.S. BLC + Cdn BLC. BLCs are as follows:

- U.S. Stikine BLC: 3,400 large Chinook salmon[2];
- Canadian Stikine BLC: 2,300 large Chinook salmon[3];
- Test fishery: 1,400 large Chinook salmon.

Harvest sharing and accounting of the AC shall be as described in Table 2.

Table 2. U.S. and Canadian allowable catches of Stikine large Chinook salmon for directed fisheries.

Allowable Catch Range		Allowable Catch Share			
		U.S.		Canada	
Lower	Upper	Lower	Upper	Lower	Upper
0	5,000	0	500	0	4,500
5,001	20,000	501	11,000	4,500	9,000
20,001	30,000	11,001	17,500	9,000	12,500
30,001	50,000	17,501	30,500	12,500	19,500
50,001	100,000	30,501	63,000	19,500	37,000

Within each allowable catch range, each Party's AC will be calculated proportional to where the AC occurs within the range. The TTC developed a spreadsheet to calculate specific harvest shares. Each Party shall determine the domestic allocation of their respective harvest shares.

When the terminal run is insufficient to provide for the Party's Stikine Chinook salmon BLC and the lower end of the escapement goal range, the reductions in each Party's base level fisheries, i.e. the fisheries that contributed to the BLCs, will be proportionate to the BLC shares, excluding the test fishery.

U.S. harvest of Stikine Chinook salmon AC will not count towards the Southeast Alaska (SEAK) aggregate abundance based management (AABM) allocation (as described in Chapter 3 of the PST). In particular:

1. non-Stikine Treaty Chinook salmon harvested in District 108 will continue to count toward the SEAK AABM harvest limit;
2. U.S. BLC of Stikine Chinook salmon in District 108 will count toward the SEAK AABM harvest limit;
3. U.S. catch of Stikine Chinook salmon in District 108 above U.S. BLC will not count towards the SEAK AABM allocation.

Accounting for the SEAK AABM Chinook salmon catches as pertains to harvests of transboundary river origin Chinook salmon, will continue to be the responsibility of the CTC as modified by (a) through (c) above.

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[2] Includes average combined U.S. gillnet, troll and sport harvest of Stikine Chinook salmon in District 108.

[3] Includes average combined Canadian Aboriginal, commercial and sport harvest of Stikine Chinook salmon.

Management Procedures

Paragraph 3(a) (3) of Annex IV, Chapter 1 of the PST include the following management details for directed fisheries targeting large Chinook salmon that apply in 2015:

- Both Parties shall take the appropriate management action to ensure that the necessary escapement goals for Chinook salmon bound for the Canadian portions of the Stikine River are achieved. The Parties agree to share in the burden of conservation. Fishing arrangements must take biodiversity and eco-system requirements into account.

- Management of directed fisheries will be abundance-based through an approach developed by the Committee. The Parties agree to implement assessment programs in support of the abundance-based management regime.

- Unless otherwise agreed, directed fisheries on Stikine River Chinook salmon will occur only in the Stikine River drainage in Canada, and in District 108 in the U.S.

- Management of Stikine River Chinook salmon will take into account the conservation of specific stocks or conservation units when planning and prosecuting their respective fisheries. To avoid over-harvesting of specific components of the run, weekly guideline harvests will be developed by the Parties by apportioning their allowable harvest over the total Chinook season based on historical weekly run timing.

- Commencing in 2009, the Parties agree to develop and implement through the Committee an agreed Chinook salmon stock identification program to assist the management of Stikine Chinook salmon.

- A preseason forecast of the Stikine River Chinook salmon terminal run size will be made by the Committee by December 1st of each year.

- Directed fisheries may be implemented based on preseason forecasts only if the preseason forecast terminal run size equals or exceeds the midpoint of the MSY escapement goal range plus the combined Canada, U.S. and test fishery BLCs of Stikine River Chinook salmon. The preseason forecast will only be used for management until inseason projections become available.

- For the purposes of determining whether to allow directed fisheries using inseason information in 2015, such fisheries will not be implemented unless the projected terminal run size exceeds the escapement goal point estimate (N_{MSY}) plus the combined Canada, U.S. and test fishery BLCs of Stikine River Chinook salmon. The Committee shall determine when inseason projections can be used for management purposes and shall establish the methodology for inseason projections and update them weekly or at other agreed intervals.

- If the escapement of Stikine River Chinook salmon is below the lower bound of the agreed escapement range for three consecutive years, the Parties will examine the management of base level fisheries and any other fishery which harvests Stikine River Chinook salmon stocks, with a view to rebuilding the escapement.

Fishery openings will be based on weekly run strength and the TAC as defined by the PST. The preseason forecast will serve as the principal run size estimator until approximately May 26, SW22. This will be replaced with inseason run projections once a reliable inseason projection is generated based on the performance of the Kakwan Point tagging catch per hour model, or a MR estimate, or a combination of the two methods. On average, approximately 25% of the run has passed the Kakwan Point site (1996–2014) by May 26. The Kakwan Point-based estimate is generated by the Stikine Chinook Management Model (SCMM). An inseason run estimate before May 26 may be adopted if agreed to by Canada and the U.S. Reliable weekly MR estimates are expected to be available by SW23 (May 31–June 5). These weekly MR estimates may be used as the principal run size estimator or be used in concert with the SCMM in assessing weekly run sizes. Catch performance of the Lower Stikine River fishery, in conjunction with daily water levels, will be monitored and may also be used, in part, to assess run size.

For the inseason run projections, abundance estimates will be expanded by timing models which include:

1. Average run timing of large Chinook salmon observed in the Canadian test fisheries in 2000–2003 and the 2005–2014 run timing observed in the Canadian commercial Chinook salmon fishery. (The Canadian commercial Chinook salmon fishery includes test fishing effort in 2010–2014 i.e. the commercial fleet served as a test fishery). Inriver timing models are used to expand the point MR estimate to project the total inriver run sizes. Timing models are not used in the projections based on the SCMM, which is a basic regression model, but may be adjusted if run timing behaviour is deemed to be unusual. Inriver timing models are also used to determine weekly guideline harvests for the lower Stikine commercial fishery and;

2. Average run timing of large Chinook salmon in the District 108 drift gillnet fishery. This is based on the District 108 drift gillnet catches for 1969–1973, 2005–2008, Canadian test fishery timing data for 2001–2003 lagged by 2 weeks, and Kakwan Point tagging CPUE for 1996–1997, 2001, 2003–2004 lagged by 7 days (annual Kakwan Point CPUE data used for run timing was based on fishing conditions that were not unduly fettered by extraordinary high water conditions in any particular year). A District 108 timing model is used to expand the cumulative catch to date to project the catch for the season, which is added to the inriver run projection to give an estimate of terminal run size. It is also used to determine weekly guideline harvests for the District 108 fisheries.

United States

The 2015 Stikine River Chinook salmon preseason forecast is large enough to allow for limited U.S. directed fisheries beginning in May. The District 108 sport fishery may be liberalized beginning May 1. Federal Stikine River subsistence fishery will open beginning May 15. The U.S. AC of 210 fish is not robust enough to allow for directed commercial fisheries. In the event that a bilaterally agreed to inseason run size estimate indicates the run is larger than the preseason forecast, the U.S. may institute directed commercial drift gillnet and troll fisheries beginning in late May or early June.

A U.S. Federal Stikine River subsistence fishery for Chinook salmon will open from May 15 to June 20 with a guideline harvest level of 125 fish. A subsistence permit issued by the USFS to federally qualified subsistence users is required to fish in the Stikine River. Permit restrictions include: restricting fishing area to upriver from tidal waters to the U.S./Canadian border; prohibiting fishing in tributaries or at stock assessment sites used by ADF&G and DFO; and restricting fishing gear to dipnets, spears, gaffs, rod and reel, beach seine, or gillnets not exceeding 15 fathoms (27.4 m) in length with mesh size no larger than 8 inches (20.3 cm). New to the 2015 season, subsistence fishermen will be required to check gillnets twice a day. The subsistence fishery is monitored inseason by USFS biologists who will provide weekly harvest and effort estimates to ADF&G commercial fishery managers.

In 2015, Chinook salmon sport fishing in District 108 may be liberalized. The final decision will be made once it is determined if a full creel census program will be implemented. Liberalized regulations would include: sport fishing may be conducted by the use of two rods per angler; the resident bag limit is three

Chinook salmon 28 inches (71 cm) or greater in length with a possession limit of six fish and; the nonresident bag and possession limit is two Chinook salmon 28 inches (71 cm), or greater, in length with a nonresident annual limit of six Chinook salmon. If the District 108 sport fishery were not liberalized or if inseason estimates consistently fall below levels that provide for a U.S. AC if it were liberalized based on the preseason forecast, the District 108 sport fishery may be de-liberalized and managed under the Southeast Alaska King Salmon Management Plan. This management plan establishes bag and possession limits and other management measures based on the coast wide Chinook salmon abundance index. The 2015 preseason abundance index will be announced in early April 2015 but it is anticipated this will result in a bag limit of three Chinook salmon 28 inches (71 cm) or greater in length with a possession limit of six fish; the nonresident bag and possession limit is two Chinook salmon 28 inches (71 cm) or greater in length; and the nonresident annual limit is six Chinook salmon.

Directed commercial drift gillnet fisheries in District 108 may occur if inseason estimates of Stikine River Chinook salmon abundance are greater than the preseason forecast. Drift gillnet fishery restrictions would include: restricting gillnets to seven-inch (178 mm) minimum stretched mesh; restricting opening start dates Mondays at 8:00 a.m., unless fishing occurs during the week of Memorial Day (week of May 25), in which case the opening would begin on Tuesday at 8:00 a.m.; and restricting weekly openings to four or less days. Opening lengths would depend on weekly guideline harvests and anticipated harvest levels determined by expected effort, run timing, and anticipated stock compositions. Closure lines that restrict fishing to areas located off the Stikine River flats would likely remain in place. In addition, closed waters to reduce the conflict between sport and commercial fishermen would be implemented (Figure 1).

Troll fisheries in District 108 will be initially managed according to the provisions of the spring troll fishery management plan. Existing regulations allow spring salmon troll fisheries targeting Chinook salmon of Alaskan hatchery origins. Harvests of non-Alaska hatchery Chinook salmon are capped at levels based on the percentage of Alaska hatchery fish in the harvest; at higher Alaska hatchery percentages, the non-Alaska hatchery Chinook salmon harvest caps increase. If inseason CWT results indicate a high proportion of Alaska hatchery fish in any given area, fishing time will be increased as appropriate. If tag results demonstrate low Alaska hatchery Chinook salmon harvests, then fishing time and/or areas will be restricted. Only fish 28 inches (71 cm), or greater, in length may be retained in the troll fishery. If inseason run size estimates are robust enough to allow for directed commercial drift gillnet fisheries in District 108, directed troll fisheries would also occur. Time and area for directed troll fishing in District 108 are determined by the duration of the drift gillnet openings. Weekly troll openings would be for three days throughout the district when the drift gillnet fishery is open for one day in a week, and for five days when the drift gillnet fishery is open for more than one day in a week. Area open to directed District 108 troll fisheries would include most of the district except for small closed areas to minimize gear conflicts between sport and commercial troll gear at the northern end of Wrangell Narrows in Frederick Sound and small areas near Greys Island, Babbler Pt., and the Wrangell Harbor area in Stikine Strait.

Canada

The preseason forecast of 30,200 large Chinook salmon allows for a directed fishery in Canada. Based on this forecast, the Canadian allowable catch is 1,890 large Chinook salmon excluding the base level and test fishery allocation of 2,300 and 1,400 large Chinook salmon respectively.

The Canadian lower Stikine River commercial fishery (Figure 2) will be managed on a weekly basis with management actions driven by results of terminal run size projections derived by the SCMM and inseason MR results, complemented with ancillary data from the U.S. sport and troll fisheries as well at the relative performance of the Lower Stikine fishery. Weekly inputs to the model will include: catch data from Alaska District 108 gillnet, troll and sport fisheries; catch data from the Canadian Stikine River commercial, test, First Nations, and sport fisheries; catch and effort from the Kakwan Point tagging site; and, escapement requirements. Weekly inputs required to generate a MR estimate will include: the number of tags to date collected from large Chinook salmon from the Lower Stikine commercial fishery, the total catch to date of large Chinook salmon, and an estimate the fraction of the run that transited the fishery to date. Total available tags to date entering the fishery will be based on the median travel speed of the tagged fish harvested. This metric (days from tagging site to fishery) will be subtracted from the total tags applied to date at the Kakwan Point tagging site. Openings will be governed by weekly abundance and AC of large Chinook salmon based on historical weekly run timing. The inriver run timing profile for 2015 is based on the average run timing of large Chinook salmon observed in the Canadian test fisheries in 2000-2003 and the 2005-14 run timing observed in the Canadian commercial/assessment fishery.

The fishery will commence at 1200 hrs May 03. The initial opening will be for one day. Fishers are permitted one net with a maximum length of 135 metres (430 ft); may be deployed as a set net or drift net. The maximum mesh size permitted is 20.3 cm (8 inch). Daily and weekly catches will be collected by a DFO representative on site. The catches will be reported to the Whitehorse office on a weekly basis

The fishing zone is bounded by the international boundary upstream to near the confluence of the Porcupine and Stikine rivers. The Iskut River is open to commercial fishing from its mouth upstream approximately 10 km. The management of the lower river commercial fishery will switch to sockeye salmon at 12:00 noon June 21 (SW26), near the traditional start date of the sockeye salmon fishery. Should a Chinook salmon conservation concern occur in statistical weeks 26-28, mesh size restrictions will be adopted, specifically limiting fishers to the use of 14 cm (5.5 inch) mesh size.

The achievement of escapement objectives is the foremost priority in management considerations. Inriver allocation priority will be to fulfill the food, social and ceremonial requirements of the traditional First Nation fishery. The commercial fisheries, therefore, will be managed to accommodate these fundamental priorities. The area of most intense management will be within the lower Stikine River commercial fishery.

It is anticipated the three primary fishery management responses to inseason Chinook salmon run size projections will include:

1. Adjusting fishing time. Fishing time in the lower Stikine River fishery generally depends upon stock assessment and international and domestic catch allocation considerations. Although the preseason expectation is for a run size capable of providing commercial fishing opportunities, initial fishing periods will likely be of shorter duration due to uncertainty over the preseason run outlook. Once inseason projections become available, caution will be exercised in providing extensions to fishing times.

2. Adjusting the fishing area. Initially, fishing boundary locations will include the Stikine River upstream to near the mouth of the Porcupine River. The section of the Stikine River from the confluence of the Porcupine and Stikine rivers upstream to near the mouth of the Scud River may be opened should the Chinook salmon return arrive in numbers that are well above spawning escapement and First Nation fishery requirements. In the Iskut River, the area will remain unchanged from previous years, i.e. from the mouth to a marker located approximately 10 km upstream from the mouth.

3. Adjusting the quantity of fishing gear. Initially only one drift or set gillnet may be used. Should the run size increase whereby a higher exploitation rate is warranted, the fishing zone will be extended to a site located near the mouth of the Flood River. The maximum allowable net length will remain at 135 meters and, in the absence of a directed Chinook salmon fishery, there will be a maximum mesh size restriction of 14 cm through noon July 11 to conserve Chinook salmon and permit harvest opportunities on sockeye salmon.

In the upper Stikine River commercial fishery, the fishery will commence at 1200 hrs May 03 for 48 hrs. The openings hence forth will be based on the openings fished in the lower Stikine River commercial fishery, lagged one week. The upper Stikine River fishers are permitted to use one net of the same dimensions as that used by fishers participating in the lower Stikine River commercial fishery as noted above. The fishing zone is bounded in the south by the confluence of the Chutine and Stikine rivers, and in the north by the confluence of the Tuya and Stikine rivers. Daily and weekly catches will be collected by a DFO representative on site. The catches will be reported to the Whitehorse office on a weekly basis (of particular note is historical commercial fishing activity clearly shows that this fishery is inactive through till late June, SW26).

As in past years, weekly fishing times in the First Nation fishery will not normally be restricted. In the First Nation fishery, reductions in fishing time would be considered only if no other adjustments could be made in the lower and upper river commercial fisheries. Daily and weekly catches will be collected by a DFO representative on site. The catches will be reported to the Whitehorse office on a weekly basis. Biological sampling to assess age, size, and stock identification will be conducted throughout the course of the fishery. Records will be delivered to the Whitehorse office of DFO at season's end.

The Stikine Chinook salmon recreational fishery is centred at the Tahltan River near its confluence with the Stikine River. Minor recreational fishing occurs in the mainstem Stikine River as well as the Iskut River. The Tahltan River will be open to recreational fishing July 01 to November 30. The Iskut River will be open from May 01 to March 31. Fishers are permitted four Chinook salmon per day, only two of which may be larger than 650 mm fork length. The possession limit consists of a two-day catch quota. The annual harvest by individual anglers is limited to ten large fish. Fishing activity, including harvest and release records, will be monitored and maintained by a field technician stationed near the Tahltan River. This activity is not expected to provide complete coverage of the sport fishing activity. The technician will also be tasked with the opportunistic collection of baseline biological data including sex, size, and age of harvested fish as well is the collection and collation of fish tags recovered by the fishery.

Harvest Information Sharing

The U.S. shall provide catches and effort in the following strata for each statistical week:

1. District 108 gillnet, sport, and troll fisheries;

2. Stikine River subsistence fishery;

3. test fisheries in District 108.

Canada shall provide catch and effort statistics in the following strata for each statistical week:

1. the lower river commercial fishery (all areas);

2. the lower river commercial fishery located near Flood Glacier (if it opens);

3. the upper river commercial fishery;

4. the First Nation fishery;

5. recreational fishery;

6. the lower Stikine River assessment fishery conducted near the international border;
7. ESSR or other terminal fishery catches will be reported as data become available.

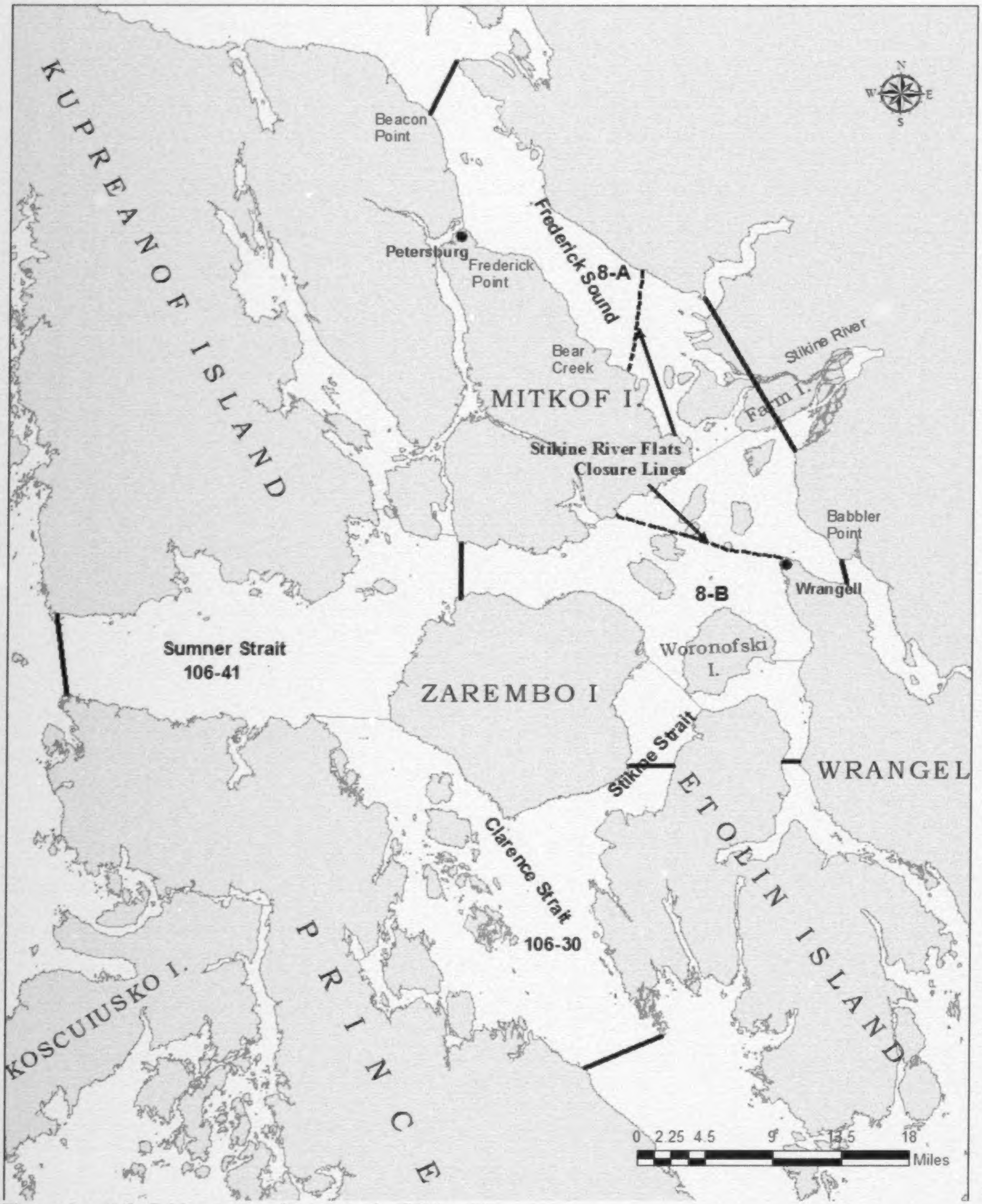
N
W
E
S
KUPREANOF ISLAND
Beacon Point
Petersburg
Frederick Point
Frederick Sound
8-A
Bear Creek
MITKOF I.
Stikine River
Farm I.
Stikine River Flats Closure Lines
Babbler Point
Wrangell
8-B
Woronofski I.
Sumner Strait
106-41
ZAREMBO I
Stikine Strait
WRANGEL
ETOLIN ISLAND
Clarence Strait
106-30
KOSCIUSKO I.
PRINCE
0
2.25
4.5
9
13.5
18
Miles

Figure 1. U.S. fishing areas adjacent to the Stikine River.

Stock Assessment Program

Each country shall:

1. provide harvest statistics for the same strata as sockeye salmon are reported;
2. sample its fisheries for, GSI (U.S.), CWT, and spaghetti tags;
3. conduct escapement and stock assessment programs as resources permit (see Appendix Table 4 for projects anticipated to be conducted in 2015).

Stock Composition of U.S. Harvests

Weekly contribution of above border Stikine River large Chinook salmon harvested in Alaska sport and commercial fisheries will be determined inseason by sampling harvest for CWT and Age, Sex, and Length (ASL). The minimum sampling goal for CWTs is 20% of the harvest; however, the target in 2015 is 30%. Size composition from the drift gillnet harvest will be determined by subsampling (200 fish weekly target if available) fish in the harvest and applying it to total harvest in District 108.

Stock composition for sport and commercial harvest will be determined postseason. Tissue samples will be taken from sport and commercially harvested Chinook salmon in District 108 and processed postseason by ADF&G Gene Conservation Laboratory in Anchorage. Genetic stock identification (GSI) will be used to recalculate contributions of above border Stikine River Chinook salmon in the District 108 sport and commercial fisheries. In the absence of GSI data, CWT data will be used to determine stock composition postseason. Scales will be collected inseason and analyzed postseason to determine the age structure composition of the harvest.

Stock Composition of Canadian Harvests (lower River commercial fishery)

GSI samples will be collected from both the lower Stikine River and commercial fishery and from tagged fish originating from the Kakwan Point tagging project. These data will be analyzed to determine weekly abundance and run timing of Little Tahltan /Tahltan origin Chinook salmon contrasted with the combined "other" stock groupings. Run timing and abundance of specific stock groupings included in the "other" category will also be determined. It is expected that these analyses will be conducted in 2016. Scales will be collected inseason and analyzed postseason to determine the age structure composition of the harvest. A minimum of 50% of the harvest will be sampled for CWT marked fish.

Sockeye Salmon

Stock Definitions

Stikine River sockeye salmon are, for research, management, and monitoring purposes, subdivided into four stock groups: 1) *wild Tahltan* stock, which are those fish originating from naturally spawning sockeye salmon in Tahltan Lake; 2) *enhanced Tahltan* stock, which are those fish originating from broodstock collected at Tahltan Lake and are subsequently back-planted as fry into Tahltan Lake; 3) *Tuya stock,* which are those fish originating from broodstock collected at Tahltan Lake and are subsequently planted as fry into Tuya Lake; and 4) *mainstem stock,* which are all other natural sockeye salmon populations in the Stikine River. For management purposes, collective wild and enhanced Tahltan Lake stocks are referred to as "total Tahltan stock", or sometimes, just "Tahltan stock."

Preseason Forecast

For 2015, the terminal run[4] outlook for Stikine sockeye salmon is 171,200 fish, which constitutes a below average run size. For comparison, the recent 10-year average total Stikine sockeye salmon run size is approximately 179,800 fish. The 2015 forecast includes approximately 50,400 wild Tahltan (29%), 31,100 enhanced Tahltan (18%), 34,000 enhanced Tuya (20%), and 55,700 mainstem sockeye salmon (33%).

The 2015 overall Stikine River sockeye salmon prediction is based on the following components:

1. an outlook of approximately 81,500 Tahltan wild + enhanced sockeye salmon of which 31,100 are expected from the enhancement project, and 50,400 are expected from natural spawners. This outlook is based solely on the recent average survival of age 2 and 3-year old smolts emigrating from Tahltan Lake in 2012 and 2013 respectively (age 4^2=2.2%, 5^2=4.0%, 5^3=6.0%, 6^3=4.8%). A sibling forecast based on regressing the number of age four wild and enhanced sockeye salmon in year-1 production against total production in the following year generated an estimate of 107,600 sockeye salmon. The number is based on substituting the total return of age-4 enhanced sockeye salmon (18,400) and age-4 wild sockeye salmon (12,400) in the following equations: $N_{(total)} = 1.1685^* n_{age\text{-}4(y-1)} + 24,607$ (enhanced equation, r^2=0.33; df:19) and $N_{(total)} = 1.321^* n_{age\text{-}4(y-1)} + 45,064$ (wild equation, r^2=0.17; df:30). In light of the poor performance of the sibling forecast since 2007 it was decided to forego incorporating this forecast in favour of using the smolt forecast, which has shown to be more accurate than the sibling forecast;

2. an outlook of 34,000 Tuya sockeye salmon, which is based recent 5-year average age-specific fry-to-adult survival data for Tuya sockeye salmon (age 4=0.6%, age 5=1.4%, age 6=0.30%);

3. an outlook of 55,700 mainstem sockeye salmon based on the average of a sibling-based prediction ($N_{(total)} = 4.342^* n_{age\text{-}4(y-1)} + 33,015$ r^2=0.34) of 58,600 fish and a stock-recruitment outlook of 52,800 sockeye salmon.

Due to fluctuations in survival for Stikine River sockeye salmon, there is a high level of uncertainty in the preseason outlooks. There have been wide discrepancies between past forecasts and postseason run size estimates. For example in 2008, the total preseason run forecast was 228,600 sockeye salmon, whereas the estimate of actual run was only 120,209 fish (this unexpectedly low run size was probably due to poor marine survival as evident in the Tahltan smolt-to-adult survival of only 2.5% in 2008 vs. an overall average of 6.5 %). However, in 1999, the preseason forecast of 126,000 Stikine sockeye salmon was very close to the postseason estimate of approximately 124,600 sockeye salmon. The performance of the preseason forecasts relative to final postseason estimates is summarized in Table 3. Despite problems with preseason forecasting, the outlooks are useful when used in concert with catch performance (CPUE) for management until inseason data becomes available for inseason run size projections.

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[4] Terminal run size = total run excluding allowance for harvests in marine areas outside the terminal Alaskan drift gillnet fisheries (e.g. Districts 106, and 108).

Table 3. Stikine River sockeye salmon preseason run forecasts vs. postseason run size estimates from 1983 to 2014, and the 2015 preseason run forecast.

Year	Preseason forecast [a]	Postseason run size	Forecast performance [b]	Absolute deviation	Absolute % deviation
1983	62,900	77,457	-18.79%	14,556	18.79%
1984	37,500	83,961	-55.33%	46,453	55.33%
1985	91,000	214,494	-57.57%	123,494	57.57%
1986	262,000	75,456	247.22%	186,544	247.22%
1987	114,000	43,350	162.98%	70,650	162.98%
1988	123,500	45,096	173.86%	78,404	173.86%
1989	80,500	90,549	-11.09%	10,046	11.10%
1990	94,000	67,384	39.71%	26,758	39.79%
1991	94,000	151,437	-39.93%	60,476	39.15%
1992	127,338	231,936	-45.10%	104,598	45.10%
1993	135,000	280,730	-51.91%	145,730	51.91%
1994	312,000	208,036	49.97%	103,964	49.97%
1995	169,000	218,728	-22.74%	49,728	22.74%
1996	329,000	372,785	-11.75%	43,785	11.75%
1997	211,000	226,915	-7.01%	15,915	7.01%
1998	218,500	121,448	79.91%	97,052	79.91%
1999	126,000	124,644	1.11%	1,386	1.11%
2000	138,000	78,504	75.79%	59,496	75.79%
2001	113,000	127,255	-11.20%	14,255	11.20%
2002	80,000	79,329	0.85%	671	0.85%
2003	184,000	240,977	-23.64%	56,977	23.64%
2004	289,500	311,987	-7.21%	22,484	7.21%
2005	477,120	259,932	83.56%	217,188	83.56%
2006	179,178	268,585	-33.29%	89,406	33.29%
2007	233,600	197,786	18.71%	37,816	18.71%
2008	228,600	120,209	90.07%	108,391	90.07%
2009	274,500	185,275	48.16%	89,225	48.16%
2010	187,700	157,001	19.55%	30,699	19.55%
2011	183,000	213,399	-14.24	-30,399	14.24
2012	134,000	124,540	7.60%	9,460	7.60%
2013	136,000	113,515	19.81%	22,485	19.81%
2014	152,300	159,095	-4.27%	-6,795	4.27%
2015	171,200				
1983-2014	174,304	164,801	-22%	59,403	92%
2005-2014	218,600	179,833	-117%	56,748	175%

Note:

a) preseason forecast based on combination of sibling, smolt and stock-recruitment forecast methods.

b) the forecast expressed as % deviation from the postseason run size estimate. Negative numbers indicate the forecast was lower than the actual run size.

The 2015 sockeye run outlook is characterized as below average. The preseason forecast translates into an expected TAC of 107,500 Stikine River sockeye salmon. Of this approximately 1,800 sockeye salmon are expected to be harvested in test fisheries (stock assessment), leaving approximately 105,700 sockeye salmon to be shared 50:50 between Canada and the U.S., (i.e. 52,800 fish to each country, excluding terminal Tuya harvest in Canada). The TAC outlook is comprised of the following components:

1. a forecasted TAC of 56,900 (total TAC of 57,500 fish minus test harvest of 600 fish) Tahltan sockeye salmon with a maximum exploitation rate of 0.71 at the predicted run size of 81,500 fish and an escapement target of 24,000 fish;
2. a forecasted TAC of 24,100 (total TAC of 24,500 fish minus test harvest of 400 fish) Tuya sockeye salmon estimated by applying the allowable Tahltan exploitation rate of 0.71 to the Tuya stock prediction of 34,000 fish. This leaves a predicted 9,900 fish surplus for the Tuya stock which potentially would be available for Canadian terminal harvest in the Tuya River;
3. a forecasted TAC of 24,900 (total TAC of 25,700 fish minus test harvest of 800 fish) mainstem sockeye salmon, which is based on an escapement target of 30,000 spawners and the expected run size of 55,700 fish.

Spawning Escapement Goals

Escapement goals have been established by the TTC for two Stikine River sockeye salmon stock groups; specifically, the Tahltan stock group and the mainstem stock group. Tahltan and mainstem stocks are considered to be independent. Surpluses or deficits in escapement in one stock are not used to balance deficits or surpluses in the other. The Tuya stock, which is enhanced and has no access to spawning or rearing grounds, has an escapement goal of zero. In practice, since the Tahltan and Tuya stocks co-mingle and have the similar migratory timing and distribution, the harvest rate on Tuya fish in traditional fisheries should not exceed that which can be sustained by the Tahltan fish so as not to over harvest the latter stock.

Escapement goals have been established as ranges which reflect biological data and professional judgment regarding stock productivity, the ability of existing management systems to attain established goals, the precision of estimates of escapement generated by stock assessment programs, and the degree of risk considered acceptable.

Subjective management categories have been defined for various escapement ranges. A postseason estimate of escapement that falls within the Green Management Category shall be considered fully acceptable; one that falls within the Yellow Management Category shall be considered acceptable, but not desired; and one that falls within the Red Management Category shall be considered undesirable. The escapement goal ranges by management category represent the best judgment of desired escapement levels.

Tahltan Stock

In 1993, the TTC established an escapement goal of 24,000 fish for the Tahltan stock (Wood et. al., unpublished data), which takes into account an escapement goal of 20,000 naturally spawning fish and up to 4,000 fish needed for broodstock to meet objectives of the Canada/U.S. Stikine River enhancement program.

Escapement goal ranges for the various management categories for the Tahltan stock are:

	TARGET = 24k				
Escapement	0 - 13k	13k - 18k	18k - 30k	30k - 45k	>45k
Mgmt. Category	Red	Yellow	Green	Yellow	Red

Mainstem Stock

Escapement goal ranges for the various management categories for the mainstem stock are:

	TARGET = 30k				
Escapement	0 - 15k	15k - 20k	20k - 40k	40k - 75k	>75k
Mgmt. Category	Red	Yellow	Green	Yellow	Red

Data Exchange

The following data for the Tahltan sockeye salmon stock will be collected and exchanged for use in evaluating escapement goals:

1. spawning escapements, separated by wild and enhanced components;
2. smolt production, separated by wild and enhanced components;
3. stock-specific harvests in the various fisheries.

The following relationships for the Tahltan stock will be examined:

1. terminal run as a function of spawning escapement level;
2. smolt production as a function of the number of natural spawners and enhanced fry;
3. adult production as a function of the number of smolts;
4. terminal run as a function of the return of age-4 sockeye salmon in the previous year;
5. relationship between the terminal run estimates to patterns of distribution and timing. This will include comparisons of various estimates (Stikine River sockeye forecast models, test fishing vs. commercial fishing CPUE, different stock ID results).

The following data for the mainstem stock will be collected and exchanged for use in evaluating escapement goals:

1. survey counts and escapement estimates based on reconstructions of inriver runs apportioned by stock ID data;
2. mainstem stock component of harvests from the various fisheries;
3. inventory and assessment data regarding historical run patterns of distribution, abundance, and timing of spawning fish.

The following relationships for the mainstem stock will be examined:

1. total escapement as a function of survey counts of escapement;
2. terminal run as a function of total spawning escapements;
3. terminal run as a function of the return of age-4 sockeye salmon in the previous year;
4. relationship of terminal run estimates to patterns of distribution and timing. This will include comparisons of various estimates (Stikine River sockeye salmon forecast models, aerial surveys, test fishing vs. commercial fishing CPUE, different stock ID results, etc.).

The following data for the Tuya sockeye salmon stock will be collected and exchanged for use in evaluating adult returns:

1. escapement estimates generated from stock ID, CPUE, and inriver run estimates;
2. number of enhanced fry;
3. stock specific harvests in the various fisheries.

The following relationships for the Tuya stock will be examined:

1. adult production as a function of the number of fry planted;
2. terminal run as a function of the return of age-4 sockeye salmon in the previous year;
3. the relationship of terminal run estimates to patterns of distribution and timing. This will include comparisons of various estimates (Stikine River sockeye salmon forecast models, test fishing vs. commercial fishing CPUE, different stock ID results, etc.).

Harvest Sharing Objectives

Pacific salmon harvest sharing provisions were re-negotiated by the PSC in January 2008 for the period 2009 through 2018. Stock assessment and harvest arrangements for Stikine sockeye salmon stocks are found in Annex IV, Chapter 1, of the PST and Appendix to Annex IV, Chapter 1 entitled "*Understanding on the Joint Enhancement of Transboundary River Sockeye Salmon Stocks*".

Management plans for the 2015 Stikine River harvest outline the TAC of Stikine River sockeye salmon, both natural and enhanced, to be shared 50/50 between the Parties in existing, i.e. customary, fisheries. If the existing fisheries do not manage to harvest the entire TAC, terminal fisheries in Canada will be allowed to target surpluses (relative to escapement goal ranges). Through 2018, the harvest sharing provision will be predicated upon carrying out agreed enhancement activities contributing to years 2014–2018. This information will be documented in annual Stikine Enhancement Production Plans (SEPP) (see Annex IV, Chapter 1 (3) (a) (1) (iii) of the PST). For the 2015 season, both parties fulfilled their respective obligations as prescribed in the in the SEPP documents and no catch share adjustments are warranted.

Management Procedures

United States

Commercial drift gillnet fisheries occur in the waters of northern Clarence Strait and Sumner Strait of District 106 and in the waters surrounding the terminus of the Stikine River in District 108 (Figure 1). Due to their close proximity, management of these areas is interrelated, resulting in some major stocks being subject to harvest in both areas. Two distinct management areas exist within each district: Frederick Sound (Section 8-A) and Wrangell (Section 8-B) portions of District 108, and the Sumner Strait (Subdistricts 106-41/42) and Clarence Strait (Subdistrict 106-30) portions of District 106. Fishing gear used in Districts 106 and 108 are similar; with common sockeye net sizes ranging between 5 and 5 ½ inches (130-140 mm). Both districts will be managed in accordance with the current Transboundary Rivers Annex of the PST.

The sockeye salmon fishing season can open, by regulation, as early as 12:00 noon on Monday, June 8 (SW24) in 2015. However, directed sockeye salmon fishing will not occur until Monday, June 15 (SW25), primarily due to an average forecasted run of Stikine River sockeye salmon. The initial opening on June 15 is expected to be 48 hours in Districts 106 and 108, but could be up to 72 hours based on expected effort. Due to an expected average return of Tahltan sockeye salmon, extra fishing time may be warranted during the first three to four weeks of the sockeye season. If the run appears to be weaker than forecasted, restrictions will primarily limit fishing time in District 108 and fishery extensions in District 106 would likely not occur. Extended fishing time and midweek openings will be based on the preseason forecasts, in-fishery harvest estimates, and stock proportion data during the first three weeks of the sockeye salmon fishery. Subsequent openings, extended fishing times, and midweek openings will be based primarily on inseason estimates produced by the SMM and other agreed upon methods for the remainder of the sockeye salmon season. Decreased fishing time may be required to ensure optimum escapement into Tahltan Lake during the initial open periods of the sockeye salmon fishery.

The preseason forecast of Stikine mainstem sockeye salmon abundance is near the 10-year average. If inseason estimates of mainstem sockeye salmon are poor, management actions may be needed. Management actions due to concerns for mainstem sockeye salmon are not expected to occur in District 106. If management actions are taken, they will occur in District 108 and would most likely be in the form of limiting midweek fishing time. Management actions would not likely occur until SW28 or SW29 and would likely not continue past SW32.

Pink salmon typically begin entering District 106 in significant numbers by the third or fourth week of July. In 2015, the Southeast Alaska pink salmon harvest is forecasted to be 58 million fish, which is well above the recent 10-year average. Early portions of the pink salmon fishery will be managed primarily by fishery performance. By early to mid-August, pink salmon destined for local systems will begin to enter the fishery in greater numbers and at that time management will be based on observed local escapements. If escapements are not evenly dispersed throughout the district, area and/or time restrictions may be necessary.

Chum salmon run strength assessments are based upon CPUE in commercial fishery harvests; however, chum salmon are incidental catch in most of District 106 and 108. The chum salmon returns to the Anita Bay THA are expected to be similar in size to the 2014 returns with a forecasted total run of 370,000 fish. Chum salmon returning to Anita Bay will likely attract fishing effort in District 108 throughout the month of July. However, during this time period, management actions in District 108 will be based solely on Stikine River sockeye salmon run performance and the estimated U.S. harvest of Stikine River sockeye salmon.

Drift gillnet openings throughout the season will begin Sunday at noon, with the exception of the first opening in SW25, which will commence noon on Monday. Announcements for drift gillnet fishery openings throughout Southeast Alaska are made on Thursday afternoons. Announcements for any fishery extensions, or midweek openings, will be made on the fishing grounds by 10:00 a.m. of the last day of the regular fishing period.

A U.S. Stikine River subsistence fishery for sockeye salmon will occur in 2015 from June 21 to July 31 with a guideline harvest level of 600 fish. A subsistence permit issued by the USFS to federally qualified subsistence users is required to fish in the Stikine River. Permit restrictions include: restricting fishing area to upriver from tidal waters to the U.S./Canadian border; prohibiting fishing in tributaries or at stock assessment sites used by ADF&G and DFO; and restricting fishing gear to dipnets, spears, gaffs, rod and reel, beach seine, or gillnets not exceeding 15 fathoms (27.4 m) in length with mesh size no larger than 5½ inches (14.0 cm). New to the 2015 season, subsistence fishermen will be required to check gillnets twice a day. The subsistence fishery is monitored inseason by USFS biologists who will provide weekly estimates of harvest and effort to ADF&G commercial fishery managers.

An ADF&G managed subsistence drift gillnet fishery, targeting sockeye salmon and encompassing the waters of Sumner Strait near Point Baker, will occur in 2015. Waters of Sumner Strait permitted for this subsistence fishery are within three nautical miles of the Prince of Wales Island shoreline north of "Hole-in-the-Wall" at 56°15.69' N. lat. and west of the longitude of the western entrance to Buster Bay at 133°29.0' W. long. Only Alaska residents can participate in this fishery and will open each week from Wednesday noon through Sunday noon from June 10 through July 31 with a limit of 25 sockeye salmon per household per year. Drift gillnet restrictions include a maximum net length of 50 fathoms (91.4 m). Harvests for the past five years have ranged up to 31 sockeye salmon with two to three permits fished. It is anticipated that fewer than 100 sockeye salmon will be harvested in this fishery in 2015.

Canada

The Canadian lower Stikine River commercial fishery (Figure 2) will be managed on a weekly basis with management actions driven by results of stock, catch, and escapement projections derived from the SMM, in river catch performance compared to historical catch performance and run size and water levels, and inseason escapement monitoring projects. Weekly inputs to the model will include: effort and catch data from Alaska District 106 and 108 gillnet fisheries; catch, effort and inseason stock composition data from the Canadian lower Stikine River commercial and test fisheries; and escapement requirements.

It is anticipated that the management of the lower river commercial fishery will switch from Chinook to sockeye salmon at 1200 hrs June 21 (SW26) for an initial 24-hour period. Consideration for Tahltan Lake sockeye salmon stock management objectives should persist through July 19 (SW29). Thereafter, management attention will be focused primarily on mainstem sockeye salmon stock objectives. As in 2010-2014, the mainstem sockeye salmon management period will be moved one week earlier in an attempt at rebuilding this stock component which has been trending downward over the past several years (management actions in 2010-2014 have resulted in improved mainstem sockeye salmon escapements). Actual time frames of responses to specific stock compositions may be fine-tuned inseason according to the weekly results of the stock ID program.

Annex IV, Chapter 1, paragraph 4 of the PST prescribes the response of either Party in the event that either Party exceeds its catch allocation in any three of five consecutive years. In 2014 Canada's fishing regime resulted in an overharvest of Stikine River sockeye salmon for a third year over a five year period. In an attempt to realign the Canadian catch to better reflect negotiated catch shares, Canada will reduce its catch of sockeye salmon by approximately 10 percent. This translates into approximately 5,300 fish relative to the preseason run size estimate. Should the 2015 run strength, however, be well above average as determined by sound inseason run size estimates, Canada will assume its full TAC allocation.

The achievement of escapement objectives is the foremost priority in management considerations. Inriver allocation priority will be to fulfill the food, social and ceremonial requirements of the traditional First Nation fishery. The commercial fisheries, therefore, will be managed to accommodate these fundamental priorities. The area of most intense management will be within the lower Stikine River commercial fishery.

The four primary fishery management responses to inseason sockeye salmon run size projections will include:

1. Adjusting the fishing time. Fishing time in the lower Stikine River fishery generally depends upon stock assessment and international and domestic catch allocation considerations. Although the preseason expectation is for a run size capable of providing commercial fishing opportunities, initial fishing periods will likely be of shorter duration due to uncertainty over the preseason run outlook. Once inseason projections become available, caution will be exercised in providing extensions to fishing times.

2. Adjusting the fishing area. Initially, fishing boundary locations will extend from the Canada/U.S. boundary upstream to a location near the mouth of the Porcupine River. The area includes the lower 10 km reach of the Iskut River. The section of the Stikine River upstream from the Porcupine-Stikine confluence will be closed for the initial sockeye salmon fishing periods. Consideration for increasing the fishing area upstream to the boundary sign located approximately 9 km below the Stikine-Scud confluence will only be given if the inseason indicators for both Chinook and sockeye salmon indicate a strong run, escapement targets are expected to be exceeded and harvests are below allocation targets. In the Iskut River, the area will remain unchanged from previous years, i.e. from the mouth to a marker located approximately 10 km upstream from the mouth.

3. Adjusting the quantity of fishing gear. Initially, only one net per license will be permitted and may be deployed as a set or drift gillnet. Gear may be increased to two gillnets should an increase in exploitation rate be warranted based on inseason terminal run size estimates. The maximum allowable net length will remain at 135 m (74 ftm) and, in the absence of a directed Chinook salmon fishery, there will be a maximum mesh size restriction of 140 mm (5.5 in) through noon July 21 to conserve Chinook salmon.

In the upper Stikine River commercial fishery, the sockeye salmon fishery will open on June 28 (SW27) for a 24-hour period. Thereafter, weekly fishing times will generally follow those of the lower river lagged by one week. Management regimes designed to reduce exploitation include reducing weekly fishing times and reducing gear from two nets to one net.

As in past years, weekly fishing times in the First Nation fishery are not expected to be restricted. Subject to conservation requirements, terminal catches in the lower Tuya River and/or at Tahltan Lake may occur under ESSR or other authorizations. In the First Nation fishery, reductions in fishing time would be considered only if no other adjustments could be made in the lower and upper river commercial fisheries.

Summary

Attainment of escapement goals for both the Tahltan Lake and mainstem sockeye salmon stocks is the primary objective of Stikine River sockeye salmon management. Harvest sharing will be based upon the TAC projections derived primarily from the SMM as outlined in the PST. In addition, other methods of estimating run sizes may be used in conjunction with the SMM with consultation between managers. Other factors that may influence harvest management include results from inseason escapement projections, e.g. projected Tahltan Lake weir counts and water levels. The TAC estimates will likely change from week to week as the SMM updates the projected run sizes from the cumulative CPUE's each week. Variations in the TAC estimates will likely be larger early in the season when CPUE is high, than later in the season. Management actions will reflect these week-to-week changes in the TAC estimates. Fishery managers from both countries will have weekly contact in order to evaluate the output from the SMM and other stock assessment tools and to update the outcome of their respective management actions.

Inseason Data Exchange and Review

Canada and the U.S. will conduct data exchanges by telephone and/or email on Wednesday afternoon or Thursday morning of each week during the fishing season. At that time, current harvest statistics and stock assessment data will be updated, exchanged, and reviewed. Management plans for the next week for each country will be discussed at this time. It is anticipated that additional communications will be required each week. Weekly decision deadlines will be: a) for Districts 106 and 108, 11:00 a.m., Thursday, Alaska Daylight Time; and, b) for the Canadian Stikine River fishery, 10:00 a.m., Friday, Pacific Daylight Time. Weekly summaries of the fisheries results will be conducted as required throughout fishing periods through telephone calls between management offices of DFO and ADF&G.

DFO field personnel will provide weekly otolith samples from the lower Stikine River commercial and test fisheries for pick-up by ADF&G; or, the otoliths may be delivered to Wrangell via select commercial fishers Tuesday each week for processing and analysis in Juneau. Results from preliminary analysis can be expected by Thursday of the current week.

Stock Assessment Program

This section summarizes agreements regarding the data which will be collected by each Party and, when appropriate, procedures that will be used for analysis.

Sockeye Harvest Statistics

The U.S. shall provide harvest and effort by statistical week in the following strata:

1. Subdistricts 106-41/42 (Sumner Strait);
2. Subdistrict 106-30 (Clarence Strait);
3. District 108;
4. Stikine River subsistence fishery.

Canada shall provide harvest and effort by statistical week in the following strata:

1. lower river commercial fishery (all areas);
2. lower river commercial fishery located near Flood Glacier (if it opens);
3. upper river commercial fishery;
4. First Nation fishery;

5. lower Stikine River test fishery conducted near the international border;

6. ESSR or other terminal fishery catches will be reported as data become available.

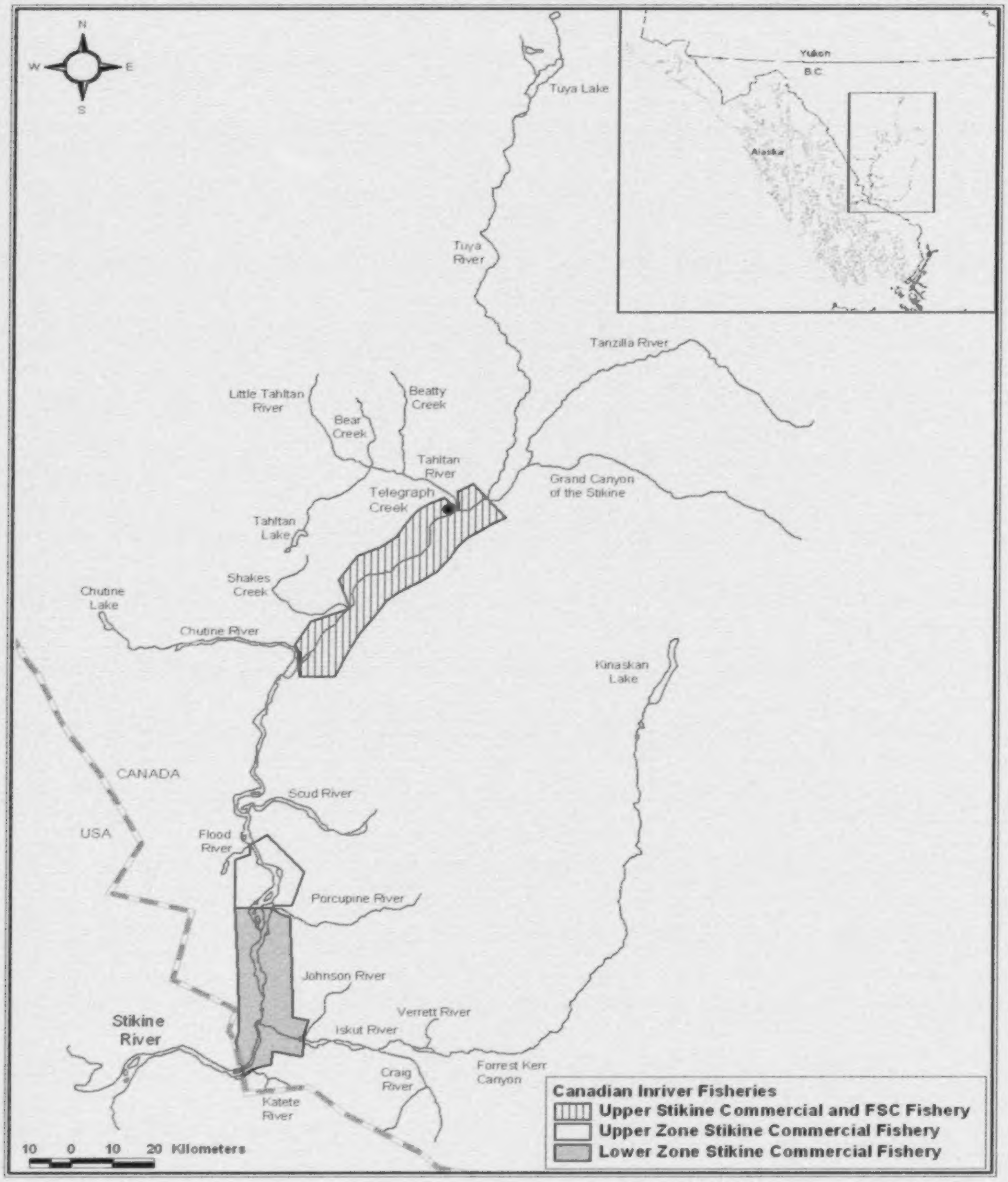
N
W
E
S
Yukon
B.C.
Alaska
Tuya Lake
Tuya River
Tanzilla River
Little Tahltan River
Beatty Creek
Bear Creek
Tahltan River
Telegraph Creek
Grand Canyon of the Stikine
Tahltan Lake
Shakes Creek
Chutine Lake
Chutine River
Kinaskan Lake
CANADA
USA
Scud River
Flood River
Porcupine River
Johnson River
Verrett River
Iskut River
Stikine River
Forrest Kerr Canyon
Craig River
Katete River
10 0 10 20 Kilometers
Canadian Inriver Fisheries
▥ Upper Stikine Commercial and FSC Fishery
☐ Upper Zone Stikine Commercial Fishery
▩ Lower Zone Stikine Commercial Fishery

Figure 2. The Stikine River and Canadian fishing areas.

Inseason Stock Assessment

Stock Composition of U.S. Harvests

The District 108 and subdistricts 106-41/42 and 106-30 drift gillnet fisheries sockeye salmon harvest will be sampled weekly to obtain matched genetic tissue, otolith, and ASL samples; 300 samples per week in subdistricts 106-41/42 and 106-30 and 520 samples per week in District 108. Otolith samples collected inseason will be sent to the ADF&G Mark, Tag, and Age Laboratory in Juneau to be processed and analyzed, within two days of the end of the fishing period, for contributions of enhanced Tahltan, Tuya, Taku, and U.S. sockeye salmon. The proportions of enhanced fish and U.S. harvest data will be portions of the data in the weekly Stikine Management Models to estimate Stikine River inriver and terminal run estimates.

Postseason GSI analysis will be used to estimate final contributions of Tahltan and mainstem sockeye salmon stocks to the harvests made each week in District 108 and subdistrict 106-41/42 and 106-30. Enhanced Tahltan and Tuya stocks will be determined through otolith analysis. U.S. subsistence sockeye salmon harvest stock composition analysis will be based on postseason estimates of the Canadian lower Stikine River commercial fishery.

Stock Composition of the Inriver Canadian Catch

Egg diameter data is used to estimate Tahltan/ Tuya stock versus the mainstem stock contributions to the sockeye salmon harvest.. Tahltan/Tuya fish generally have smaller diameter eggs (<3.7 mm) compared to mainstem fish. In addition both enhanced Tahltan and Tuya components will be determined from the analysis of otolith samples collected each week.

In the lower Stikine River commercial fishery, sockeye salmon harvest will be sampled weekly to obtain a total of 550 samples; 200 targeted and 350 random samples. The targeted samples include 150 matched egg diameter, otolith, and ASL samples from female fish and 50 matched otolith and ASL samples from male fish. The random samples include 350 ASL samples. ADF&G will analyze the thermal marks from a subsample of at least 60 fish each week. Arrangements will be made to ensure timely transfer of samples and notification of results for use in management decisions no later than the week following when the samples are collected. As stated above, weekly pickup/delivery times for the otolith samples from the river will be on Tuesday, unless otherwise agreed. In addition, up to 300 GSI samples will be collected each week for future stock composition analysis. If samples are not available in August due to lack of fishing effort, samples may be augmented from the test fishery.

Inseason egg diameter and otolith data will be used to estimate contributions of wild Tahltan, mainstem, and enhanced Tahltan and Tuya sockeye salmon. This data will be a part of the SMM. Postseason egg diameter, age, sex, and otolith analysis is used to estimate the contributions of wild Tahltan, mainstem and enhanced Tahltan and Tuya sockeye salmon.

In the upper Stikine River fishing area, annually up to 600 sockeye salmon will be sampled for age, sex, length, egg diameters, and otoliths from the combined commercial and First Nation fisheries.

Stock Composition and Run Timing in the Canadian Test Fishery

The proportions of Tahltan/Tuya and mainstem sockeye salmon in test fishery harvest in the lower Stikine River will be estimated inseason in a similar manner to the commercial fishery. Up to 400 fish harvested in the test fishery per week will be sampled for scales, sex, length, and otoliths. All female samples will include matched egg diameter, otolith, and ASL data. The test fishery otolith samples will be transferred to ADF&G, as per the arrangements made for the commercial samples, for inseason analysis. Additionally, up to 200 samples per week will be collected for GSI analysis.

The postseason sockeye salmon stock composition estimates will be based on egg diameter, otolith, and ASL analyses. Similar to the commercial fishery, the enhanced portion of the harvest will be determined postseason from otolith samples.

Spawning Escapement Estimates

An adult enumeration weir will be used to estimate the Tahltan Lake sockeye salmon escapement. The age composition will be estimated from scale samples, and contributions of enhanced sockeye salmon will be determined from otolith samples. Approximately 800 fish will be sampled during the season for scales, length and sex; as well 400 otolith samples will be taken at the weir (subject to conservation concerns) and 400 otolith samples will be taken from the broodstock.

The mainstem sockeye salmon escapement will be estimated postseason using migratory timing information obtained from CPUE and stock identification data from the commercial and/or test fishery, combined with weekly stock compositions estimated from the commercial and/or test fishery harvest. Aerial surveys of six mainstem sockeye salmon spawning indices will be conducted to serve as ancillary escapement information. The Tuya sockeye salmon escapement will be estimated postseason in a similar way.

Subject to funding, up to 400 Tuya River sockeye salmon will be sampled for age, size and sex composition and otoliths.

Stikine River Run Estimates

The annual inriver Stikine River run is estimated by dividing the total inriver Tahltan run by the inriver stock composition of the Tahltan stock. The inriver Tahltan stock composition is estimated from analyzing data from samples taken in the lower river commercial harvest and/or the lower river test fishery (drift gillnet and set net). Samples include data on egg diameter (large/small egg; small eggs are Tahltan/Tuya stocks), otolith marks (Tahltan or Tuya), age, and sex. To estimate the total stock composition by commercial and test fishery postseason, separately by fishery all of the variables are used to smooth the data and proportion out the known female stock information from egg diameter and marks to the male portion of the run. Then, the fishery stock composition is multiplied by the respective harvest to get stock specific harvest, CPUE, and migratory timing.

Data Evaluation Procedures

Historical Database

Canadian commercial fishing began in the Stikine River in 1975, but the methodology for estimating sockeye salmon terminal run sizes was not well standardized until 1982. Therefore, estimates of run size after this time are considered to be better than those made prior to 1982. The historical databases from 1979 on for the Canadian lower Stikine River, from 1985 on for Alaskan subdistrict 106-41/42 commercial fisheries, from 1986–2004 for the Canadian test fishery, from 2002 on for the subdistrict 106-30 fishery, and from 1986 on for the District 108 fishery will be used in the development of the Stikine Forecast Management Model (SFMM) for 2015 (note: the incomplete fishing pattern and unusual migratory behavior observed in the Canadian Lower Stikine River commercial fishery in some years may preclude the use of the data from those years in the model). The 2015 run size estimated by the model at the end of the fishing season will be replaced in the fall/winter of 2015 using postseason stock composition data for use in the database in future years.

Management Models: SMM and SFMM

A description of the original Stikine Management model (SMM) is given in the *Transboundary Technical Committee Report: TCTR (88)-2, Salmon Management Plan for the Transboundary Rivers, 1988*. Many subtle changes have been made in the model since that documentation was written and a new documentation is in progress. The purpose of the model is to aid managers in making weekly harvest decisions to meet U.S./Canada treaty obligations for harvest sharing and conservation of Stikine sockeye salmon.

The SMM prediction model, based on the relationship between inriver cumulative CPUE and inriver run size along with the weekly run fraction (based on the cumulative CPUE in the District 108 fishery) and cumulative harvest in District 108, is updated to make weekly inseason predictions of the total terminal run size and the TAC. First, a separate linear regression is used to predict inriver run size using cumulative CPUE from the inriver fishery for each week of the fishery beginning in SW27 (using cumulative CPUE from SW24–26). If the inriver run abundance is expected to be below average (low), the intercept in the linear regression is forced to be zero. Second, to estimate the terminal run, the projected inriver run is added to the projected total season harvest of Stikine River sockeye salmon in District 108. The projected harvest in District 108 is based on an assumed 90% contribution of Stikine River sockeye salmon to the cumulative harvest expanded by historical run timing, and the projected District 106 harvest is based on the assumption that 10% of the terminal run will be harvested in District 106. Therefore, the terminal run projection is the sum of the projection for the inriver run and the projection of the District 108 cumulative harvest expanded by historical run timing and then multiplied by 1/0.9.

The SMM also estimates the stock proportions in District 106 and 108 harvests, from historical postseason scale pattern analysis (SPA) into triggers of run size for Tahltan and Mainstem; the averages used each week depended upon whether the run was judged to be below average (0–40,000), average (40,000–80,000), or above average (+80,000). The SMM for 2015 is based on CPUE data from 1994 to 2013 from the Alaska District 106 fishery and the Canadian commercial fishery in the lower river and from the lower Stikine River test fishery from 1986 to 2004. The enhanced Tuya and Tahltan stock proportions are adjusted inseason based on the analysis of otolith samples taken in Districts 106 and 108.

The inriver CPUE from 1994–2000, 2004–2011 (excluding the upper fishing area harvests and when additional nets were introduced into the fishery), is standardized, depending on the management regime expected to be in place, to ensure the annual CPUE values are comparable. The historical CPUE values will reflect those of a one net regime; model inputs of the CPUE from the lower river commercial fishery will be adjusted accordingly depending on whether one or two nets are being fished. If the management regime permits two nets and a fishing zone extended upstream to the mouth of the Flood River, as occurred in 2003–2009, the model will use adjusted data for the lower Stikine River commercial CPUE which will exclude harvest and effort data from the Flood Glacier area, i.e. the extended fishing area fished during 1997–2000, 2004–2007, and 2009. In addition, the weekly CPUE data from 1994–2000, 2005–2009 (excluding the Flood area CPUE data) is decreased by 25% to account for the extra gear allowed during this period. This makes the historical CPUE data comparable with the 2015 data.

Four sets of CPUE data have been used to predict the terminal run. These include:

1. The subdistrict 106-41/42 cumulative CPUE of Stikine sockeye salmon stocks;
2. The District 108 cumulative CPUE of Stikine sockeye salmon stocks;
3. The lower Stikine River commercial CPUE of Stikine sockeye salmon stocks;
4. The lower river test fishery cumulative CPUE.

For 2015, along with the SMM prediction model, the SFMM preliminary prediction model will be updated to make weekly inseason predictions of the total terminal run size and the TAC. The SFMM gives six estimates of run size compared to three estimates given by the SMM. The first four inseason terminal run size estimates of the SFMM (Model1-Model4) all have the same second order polynomial regression model structure,

$$\hat{Z}_{i,j} = \alpha + \beta_1 X_{i-1,j1} + \beta_2 X^2_{i-1,j1} + \sum_{i=26}^{36} \gamma_i (D_i). \tag{1}$$

In this model structure, $\hat{Z}$ is the predicted terminal run size estimated from data source *j* and for time period *i*, α is the intercept for statistical week 25, β is the slope of the regression line, γ is the adjustment to the intercept based on the statistical week of the prediction (*i*=26-36), and *X* is data from data source *j* through time period *i*-1. The four data sources for the inseason model are: (1) cumulative commercial harvest of subdistrict 106-41/42 through statistical weeks *i*-1; (2) cumulative commercial harvest of the District 108 primary sockeye salmon harvest area through statistical weeks *i*-1; (3) cumulative commercial CPUE of subdistrict 106-41/42 through statistical weeks *i*-1; or (4) cumulative commercial CPUE of the District 108 sockeye salmon area through statistical weeks *i*-1.

Similar to the SMM model structure, Model5 and Model6 have the model structure,

$$\hat{Z}_{i,j} = \frac{I_{i,k} + (X_{i-1,j} / Y_{i-1})}{0.9}, \tag{2}$$

where *I* is the projected inriver run estimate by model *k* for time period *i* added to the data from data source *j* through the time period *i*-1 (X) divided by the cumulative historical run timing through statistical weeks *i*-1 (*Y*). The data source is the cumulative commercial harvest of the District 108 sockeye salmon area through statistical weeks *i*-1. The projected harvest in the District 108 sockeye salmon area is based on an assumed 90% contribution of total Stikine sockeye salmon to the cumulative harvest. There were two different inriver models (I_k). The first inriver model, used for the Model5 terminal run size prediction, is based on an ANCOVA model,

$$\hat{I}_{i,j} = \alpha + \beta_1 X_{i-1,1} + \sum_{i=27}^{36} \gamma_i (D_i) + \sum_{i=27}^{36} \delta_{1i} (X_{i-1,1} D_i), \tag{3}$$

where *X* is cumulative inriver commercial harvest through statistical weeks *i*-1 and δ is an interaction term. The second inriver model, used for the Model6 terminal run size prediction, is a second order polynomial regression model using cumulative CPUE of the lower inriver commercial fishery through statistical weeks *i*-1 (similar to equation 1).

The 2015 inseason predictions of abundance and TAC will be based on the following datasets:

1. Management actions in SW24–25 (possibly SW26–27) will be based on the preseason forecast.
2. The forecasts for SW27–30 will be based on the SMM with consideration given to the preliminary SFMM produced forecasts.
3. After SW30, the management models will continue to be updated using the cumulative harvest data from subdistrict 106-41/42 fishery data; however, run projections tend to be less reliable after SW30 and will be viewed accordingly.
4. Historical timing data will be used to provide weekly guideline harvests for each country.

5. Weekly management decisions may include other considerations such as:
    a. The lower river commercial CPUE of the Tahltan Lake stock grouping may be used to calculate inriver run size by a linear regression equation independent of the model. The run size of the Tuya and mainstem stock grouping will be determined based on the proportion of the CPUE of these stock groupings in the current statistical week and expanded by run timing (note: water levels and associated changes in exploitation rates will be monitored and used in assessing the run size);
    b. The current week's inriver run size of Tahltan Lake sockeye salmon may be calculated based on the estimated harvest rate in the lower Stikine River commercial fishery expanded by run timing. The harvest rate is estimated based on the historical relationship between effort and inriver run size. The run size projections for the Tuya and mainstem stock groupings will be determined based on the proportion of the CPUE of these stock groupings through the current statistical week and expanded by run timing (note: water levels and associated changes in exploitation rates will be monitored and used in assessing the run size);
    c. Harvest rates in existing fisheries compared to historical averages, run sizes, and water levels;
    d. Comparison of current year inriver harvest performance by stock grouping against past harvest performance and run size, and perceived changes in current year run timing information from the run timing regime identified in the management models.

Separate projections of terminal run size will be made for the combined Stikine sockeye salmon stocks (wild plus enhanced), the Tahltan Lake stock (wild plus enhanced), the enhanced Tuya stock, and the mainstem stock. This information will be used inseason to assist in fisheries management and postseason will be evaluated along with other measures of abundance.

The part of the models which determines total and weekly TAC levels for the U.S. and Canadian fisheries has been formulated in EXCEL® for use by managers inseason. This part of the model uses the coefficients from the linear regression model, the established escapement goals, and PST harvest sharing provisions to determine the TAC for each country. Estimates of weekly TAC and effort are provided as guidelines for the managers and are derived from the 1986–2011 average run timing of the stocks and the corresponding average CPUE levels of each fishery.

Inseason Use

For 2015, the models predictions will set the TAC levels; however, additional information may be used to calculate run size to inform decisions regarding fishery openings. The models output will be evaluated and compared with discrepancies from other information available on the run strength (e.g. inriver Tahltan Lake CPUE and water level). The postseason evaluation will be used to improve the SMM and SFMM for the next year.

Postseason Evaluation

After the fishing season is over, the TTC will evaluate how well the SMM and SFMM performed in predicting the terminal run, where discrepancies occurred, and what might have caused them. The TTC will also determine whether escapement goals were met according to the Spawning Escapement Goals section of this report. Results from the evaluation will be presented in the annual harvest and escapement report prepared by the committee.

Coho Salmon

Preseason Forecast

The Canadian produced preseason forecast of Stikine River coho salmon is based on multiplying the estimated escapement of female coho salmon by a DFO "biological standard" production factor of 5.7. This factor was generated by the Canadian Salmon Enhancement Program and is used as a general multiplier in assessing potential production in the absence of more precise data.

The brood year escapement information contributing to the Stikine coho salmon run in 2015 was approximately 39,600 (2011) and 28,000 (2012). The escapement estimates were based on the performance of the 2011 and 2012 coho salmon test fisheries compared to the performance of the 2011 and 2012 sockeye salmon test fisheries and the resultant sockeye salmon inriver run size from the latter. For example, the 2011 cumulative average weekly CPUE of coho salmon was 4,625 fish per test drift while the sockeye salmon cumulative average weekly CPUE was 14,177 fish per drift. The coho salmon CPUE was 32.6% of the sockeye salmon CPUE. The total inriver coho salmon run size, therefore, was estimated to be 32.6% of the inriver run size of sockeye salmon which was 139,500 fish in 2011. The total estimate inriver runs size of coho salmon therefore was ~45,500 fish. The inriver coho salmon harvest of ~5,900 fish subtracted from the inriver run size estimate results in an estimated escapement of 39,600 coho salmon. It should be noted that the applicability of extrapolating coho salmon escapement from the sockeye salmon test fishery and run analysis has not yet been determined.

Based on the 2011-2012 brood year escapements of 39,600 and 28,000 fish respectively, the 2015 return of Stikine River coho salmon is expected to be below average.

Although annual aerial surveys and past test fishing projects, the latter of which, provided reliable run timing information coupled with "coarse" estimates of coho salmon run size relative to the inriver run size of sockeye salmon, there remains a lack of reliable escapement and marine survival data for Stikine River coho salmon required to generate a sound, defensible outlook.

Escapement Goal

The interim spawning objective for Stikine coho salmon is 30,000 to 50,000 fish.

Harvest Sharing Objectives

The U.S. management intent is to ensure that sufficient coho salmon enter the Canadian section of the Stikine River to meet the agreed spawning objective, plus an annual Canadian harvest of 5,000 coho salmon in a directed coho salmon fishery (PST, Transboundary Rivers, Annex IV, para. 3(a)(2)(ii)).

Stock Assessment Program

Each country shall:

1. provide harvest statistics for the same strata as sockeye salmon;
2. sample its fisheries for CWT;
3. conduct escapement programs as resources permit.

Management Procedures

United States

Drift gillnet fishing for coho salmon will start during late August or early September. Alaskan hatcheries contribute substantially to coho salmon harvest in District 106 and 108 fisheries. Inseason estimates from CWT recovery data will be used to identify the hatchery component of the harvest. Only the harvest of wild coho salmon will be used for fishery performance evaluation.

By regulation, coho salmon may not be retained in the salmon troll fishery until June 1. Spring troll fisheries (from the end of the winter fishery to June 30) are managed to target Alaskan hatchery Chinook salmon and must stay within certain Treaty harvest limits adopted by the Alaska Board of Fisheries. Coho salmon are harvested incidentally during the last two weeks of the spring troll fishery and harvests during that time period are typically low. During the summer troll fishery (July 1 to September 30), the salmon troll fishery in District 108 is opened concurrently with drift gillnet fishing. When first opened, the summer fishery targets Chinook and coho salmon. When Chinook salmon harvest goals are reached, the fishery is closed to Chinook salmon retention but remains open to coho salmon retention. The coho salmon season usually remains open through September 20 but may be closed earlier for conservation and/or allocative reasons in July or August. An extension of the coho salmon season to September 30 may occur during years when the department projects escapements will be met.

If there is a conservation concern for Stikine River coho salmon, the District 108 drift gillnet and troll fisheries will be restricted.

A U.S. Stikine River subsistence fishery for coho salmon will occur in 2015 from August 1 to October 31 with a guideline harvest level of 400 fish. A subsistence permit issued by the USFS to federally qualified subsistence users is required to fish in the Stikine River. Permit restrictions include: restricting fishing area to upriver from tidal waters to the U.S./Canadian border; prohibiting fishing in tributaries or at stock assessment sites used by ADF&G and DFO; and restricting fishing gear to dipnets, spears, gaffs, rod and reel, beach seine, or gillnets not exceeding 15 fathoms (27.4 m) in length with mesh size no larger than 5½ inches (14.0 cm). New to the 2015 season, subsistence fishermen will be required to check gillnets twice a day. The subsistence fishery is monitored inseason by USFS biologists who will provide weekly estimates of harvest and effort to ADF&G commercial fishery managers.

An Alaska State subsistence fishery, targeting coho salmon, will be conducted again in 2015. Subsistence fishing for coho salmon is permitted in all streams of District 105 north of a line from Pt. Saint Albans to Cape Pole, District 106 west of line from Macnamara Pt. to Mitchell Pt. and west of the longitude of Macnamara Pt., and all of District 107 and District 108 (excluding the Stikine River). Only Alaska residents can participate in the subsistence fishery, which is open from August 16 to October 31 with a limit of 40 coho salmon per household per year.

Canada

Coho salmon management will commence in SW35 (August 23-29). The fleet is expected to harvest the allocated TAC of 5,000 pieces within a two to three week targeted coho salmon fishery. Fishers will be permitted the use of one, 135 m (74 ftm) gillnet. The maximum mesh size will be restricted to 204 mm (8 inches).The Canadian fishery will be restricted in the event of conservation concerns

TAKU RIVER

Chinook Salmon

Preseason Forecast

The bilateral preseason forecast for the Taku River large Chinook salmon terminal run is 26,100 fish. The Taku River Chinook salmon sibling model produced a terminal run size forecast of 36,900 fish. Due to consistent overestimation in recent years, the estimate was discounted using the 5-year average percentage error of 41% (based on data available at the time of forecasting). An additional consideration for reducing the model produced forecast is the general poor performance of Chinook salmon stocks throughout Alaska, northern British Columbia, and the Yukon in recent years.

This forecast is based on sibling returns and is below the recent 10-year average terminal run of 34,900 large Chinook salmon. The principal brood years contributing to the 2015 Chinook salmon run are 2009 (22,761), 2010 (28,769), and 2011 (27,523). In 2009, the spawning escapement goal was revised to an interim MSY point estimate of 25,500 fish within a target range of 19,000 to 36,000 fish. The 2015 preseason forecast is insufficient for directed fisheries in both the U.S. and Canada.

Table 4. Taku River large Chinook salmon terminal run preseason forecasts versus postseason estimates from 1997 to 2014, and the 2015 preseason forecast.

Year	Preseason Forecast [a]	Postseason Run Size [b]	Forecast Performance [c]
1997	106,103	114,938	-8%
1998	47,827	31,039	54%
1999	24,525	16,786	46%
2000	32,130	34,997	-8%
2001	38,559	46,644	-17%
2002	39,947	55,044	-27%
2003	44,166	36,435	21%
2004	56,451	75,032	-25%
2005	99,610	65,334	52%
2006	64,150	61,859	4%
2007	38,720	18,650	108%
2008	39,406	30,186	31%
2009	50,164	35,106	43%
2010	41,328	35,784	15%
2011	40,986	31,939	28%
2012	48,036	23,872	101%
2013	26,088	19,366	35%
2014	37,936	27,217	39%
2015	36,949		
	Adjusted Forecast [d]		
2013	18,500	19,366	-4%
2014	26,781	27,217	-2%
2015	26,137		

Note:

Data source: *Preliminary Estimates of Transboundary River Salmon Production, Harvest, and Escapement and a Review of Joint Enhancement Activities in 2014*

a) Preseason forecasts of large Chinook salmon terminal run size based on the sibling models; prior to 2005, forecasts were for escapement.

b) Estimates of postseason large Chinook salmon terminal run size and escapement from TTC 2014 preliminary report.
c) Forecast performance relative to the actual run size determined from postseason run reconstructions. Positive values indicate the forecast was higher than postseason run size estimates; negative values, the forecast was below postseason run size estimates.
d) Adjusted forecast using 5-year average percentage error.

Escapement Goal

Annex IV, Chapter 1 of the PST required the Parties to review an appropriate escapement goal for Taku River Chinook salmon by January 15, 2009 and to pass a jointly prepared technical report through accelerated domestic review processes in time for a revised goal to be applied to the 2009 season. Detailed analyses of harvest and spawning abundance by age class and smolt production were used to generate a recommendation for a 19,000 to 36,000 adult fish (3-5 ocean and mid eye to fork length of >659 mm) escapement goal range with a point goal of 25,500 large Chinook salmon (McPherson et al 2010). This goal was in place on an interim basis for the 2010 fishing season pending finalized review in the fall of that year. The escapement goal report did receive thorough review by the CTC and Centre for Science Advice Pacific (CSAP; previously known as PSARC) and the analysis was determined to be sound. The TBR Panel adopted the revised goal.

Harvest Sharing Objectives

Harvest sharing provisions for Taku River large Chinook salmon are included in Paragraph 3(a) (3) of Annex IV, Chapter 1 of the PST. The catch sharing provisions were developed to acknowledge the traditional catches in fisheries, referred to as base level catches (BLCs), which occurred prior to the new arrangements; these included incidental harvest in Canadian and U.S. commercial gillnet fisheries, U.S. and Canadian sport fisheries, the Canadian First Nation fishery, and the test fishery. For the new directed fisheries, the allowable catch (AC) will be calculated as follows:

AC = Terminal run - Base Terminal Run (BTR); where

BTR = escapement target + test fishery BLC + U.S. BLC + Cdn BLC

BLCs are as follows:
- U.S. Taku BLC: 3,500 large Chinook salmon [5]
- Canadian Taku BLC: 1,500 large Chinook salmon [6]
- Test fishery: 1,400 large Chinook salmon;

Harvest sharing and accounting of the AC is detailed in Table 5.

Table 5. U.S. and Canadian allowable harvests of large Taku River Chinook salmon for directed fisheries.

Allowable Catch Range		Allowable Catch Share			
		U.S.		Canada	
Lower	Upper	Lower	Upper	Lower	Upper
0	5,000	0	0	0	5,000
5,001	20,000	1	11,000	5,000	9,000
20,001	30,000	11,001	17,500	9,000	12,500
30,001	50,000	17,501	30,500	12,500	19,500
50,001	100,000	30,501	63,000	19,500	37,000

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[5] Includes average combined U.S. drift gillnet and sport harvest of large Taku River Chinook salmon in District 111.
[6] Includes average combined Canadian Aboriginal, commercial and estimated sport harvest of large Taku River Chinook salmon.

Within each allowable catch range, each Party's AC will be calculated proportional to where the AC occurs within the range. The TTC has developed a spreadsheet to calculate specific catch shares. The Parties shall determine the domestic allocation of their respective harvest shares.

When the terminal run is insufficient to provide for the Party's Taku River Chinook salmon BLC and the lower end of the escapement goal range, the reductions in each Party's base level fisheries, i.e. the fisheries that contributed to the BLCs, will be proportionate to the BLC shares, excluding the test fishery.

The U.S. catch of the Taku River Chinook salmon AC will not count towards the Southeast Alaska (SEAK) aggregate abundance based management (AABM) allocation (as described in Chapter 3 of the PST). In particular:

a. non-Taku River Treaty Chinook salmon harvested in District 111 will continue to count toward the SEAK AABM harvest limit;

b. the U.S. BLC of Taku River Chinook salmon in District 111 will count toward the SEAK AABM harvest limit;

c. the U.S. catch of Taku River Chinook salmon in District 111 above the U.S. BLC will not count towards the SEAK AABM allocation.

Accounting for the SEAK AABM Chinook salmon catches as pertains to transboundary rivers harvests will continue to be the responsibility of the CTC as modified by (a) through (c) above.

Management Procedures

The management coordination between U.S. and Canadian fishery managers will involve weekly communication between designated members or alternates. Canadian and U.S. fishery managers will conduct data exchanges by telephone and/or email on Wednesday afternoon or Thursday morning of each week during the fishing season. At that time, current harvest statistics and stock assessment data including MR data will be updated, exchanged, and reviewed. Management plans for the next week for each country will be discussed at this time. It is anticipated that additional communications will be required each week. Weekly decision deadlines will be: a) for District 111, 11:00 a.m., Thursday, Alaska Daylight Time; i.e. noon Pacific Daylight Time; and, b) for the Canadian Taku River fishery, 10:00 a.m., Friday, Pacific Daylight Time. Weekly summaries of the fisheries results will be conducted frequently throughout fishing periods through telephone calls or email between management offices of DFO and ADF&G.

The 2009–2018 Taku River Chinook salmon agreement (Paragraph 3(a) (3) of Annex IV, Chapter 1 of the PST) includes the following management details for directed fisheries:

- This agreement shall apply to large (greater than 659 mm mid eye to fork length) Chinook salmon originating in the Taku River.

- Both Parties shall take the appropriate management action to ensure that the necessary escapement goals for Chinook salmon bound for the Canadian portions of the Taku River are achieved. The Parties agree to share in the burden of conservation. Fishing arrangements must take biodiversity and ecosystem requirements into account.

- Management of directed fisheries will be abundance-based through an approach developed by the TTC. The Parties agree to implement assessment programs in support of the abundance-based management regime.

- Unless otherwise agreed, directed fisheries on Taku River Chinook salmon will occur only in the Taku River drainage in Canada, and in District 111 in the U.S.

- Management of Taku River Chinook salmon will take into account the conservation of specific stocks or conservation units when planning and prosecuting their respective fisheries. To avoid over-harvesting of specific components of the run, weekly guideline harvests, or other agreed management measures, will be developed by the TTC by apportioning the allowable harvest of each Party over the total Chinook salmon season based on historical weekly run timing.

- The Parties agree to implement through the TTC an agreed Chinook salmon genetic stock identification (GSI) program to assist the management of Taku River Chinook salmon. The Parties agree to continue the development of joint (GSI) baselines.

- The Parties agree to periodically review the above-border Taku River Chinook salmon spawning escapement goal which will be expressed in terms of large fish (greater than 659 mm mid eye to fork length).

- A preseason forecast of the Taku River Chinook salmon terminal run[7] size will be made by the TTC by December 1 of each year.

- Directed fisheries may be implemented based on preseason forecasts only if the preseason forecast terminal run size equals or exceeds the midpoint of the MSY escapement goal range plus the combined Canada, U.S., and test fishery base level catches (BLCs) of Taku River Chinook salmon. The preseason forecast will only be used for management until inseason projections become available.

- For the purposes of determining whether to allow directed fisheries using inseason information, such fisheries will not be implemented unless the projected terminal run size exceeds the bilaterally agreed escapement goal point estimate (N_{MSY}) plus the combined Canada, U.S. and test fishery BLCs of Taku River Chinook salmon. The Committee shall determine when inseason projections can be used for management purposes and shall establish the methodology for inseason projections and update them weekly or at other agreed intervals.

- When the terminal run is insufficient to provide for the Party's Taku River Chinook salmon BLC and the lower end of the escapement goal range, the reductions in each Party's base level fisheries, i.e. the fisheries that contributed to the BLCs, will be proportionate to the Taku River Chinook BLC shares, excluding the test fishery.

- When the escapement of Taku River Chinook salmon is below the lower bound of the agreed escapement range for three consecutive years, the Parties will examine the management of base level fisheries and any other fishery which harvests Taku River Chinook salmon stocks, with a view to rebuilding the escapement.

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[7] Terminal run = total Taku River Chinook salmon run size minus the U.S. troll catch of Taku River Chinook salmon outside District 111.

Inseason estimates of the inriver run will be made using a bilaterally agreed-to sulk rate for tags released in event 1 of the two-event mark-recapture study. Sulk rates will be based on the analysis of inseason data. In the event bilateral agreement cannot be reached with respect to the sulk rate, an assumed 10-day sulk rate will be used. Inseason terminal run projections will be made using average run timing seen in catches at Canyon Island (or other bilaterally agreed-to timing). In addition, the terminal marine harvests will be lagged one week to account for travel time between Taku Inlet and the event 2 sampling area.

For inseason estimates, a valid Petersen will be sought. In the event a valid Petersen is not available, upon agreement, another valid estimate may be used. Should there be no agreement on an alternate valid estimator then the most recent agreed valid estimate will be used. If no agreed-to valid estimate has been generated the preseason forecast will be used.

$$\mathbf{TR = [(P_t + Cus_{(t-1)})/}p_t\mathbf{)\ ]}$$

Where: TR = the projected terminal run of large Chinook salmon for the season;

P_t = the inriver population estimate from the MR program through week "t";

Cus_{t-1} = the cumulative US Chinook salmon catch to week "*t-1*", i.e. US catch lagged one week to account for migration timing;

p_t = the estimated cumulative proportion of run through to week *t* determined from the inriver run timing based on historical catch data from Canyon Island. (Both Parties must agree prior to adjusting run timing estimates inseason).

The PST harvest sharing provisions will be applied to the weekly Chinook salmon AC projections to guide the management of the Parties respective commercial fisheries. Run timing will be used to apportion the Parties allowable catches each week to provide guideline harvest levels for use in management. Test/assessment fisheries will be based on no more than four openings per week and effort will be standardized as best as possible throughout these days. On days when no inriver test/assessment or Canadian commercial fishing occurs, stock assessment crews intend to fish five hours per day (soak time) with drift gillnets in the same area of the river to capture, tag and release, and sample for tags, age, sex, and length information.

United States

The 2015 preseason forecast of 26,100 large Taku River Chinook salmon does not provide an AC for any directed Taku River Chinook salmon fisheries. The U.S. does not anticipate any directed fisheries in 2015 based on recent trends of Taku River Chinook salmon abundance and trends in Chinook salmon abundance throughout Alaska. Depending on the development of the Taku River Chinook salmon return, Chinook salmon conservation measures including restrictions in time, mesh size (6 inch maximum), and area (Taku Inlet, north of Jaw Point closed) may be imposed during the initial weeks of the directed sockeye salmon fishery.

The Chinook salmon sport fishery in District 111 will not be liberalized initially in 2015. In addition, given the poor preseason forecast, the U.S. is taking additional conservation measures and will restrict the D111 sport fishery to a bag limit of one Chinook salmon 28 inches (71 cm) or greater in length with a possession limit of one fish for residents and nonresidents. The District 111 sport fishery in 2015 will be monitored through a creel census program.

Canada

As in past years, restrictions in weekly fishing times in the Canadian First Nation fishery are not anticipated. Any reductions in fishing time would be considered only if no other adjustments could be made in the commercial fishery. Catches will be collected by TRTFN representatives and reported to the Whitehorse office of DFO on a periodic basis.

The Taku River recreational fishery takes place primarily on the Nakina River; some additional fishing occurs on the Tatsamenie Lake outlet stream and other Taku River tributaries. The Nakina River fishery will be closed to recreational fishing July 20 through August 15. The Tatsamenie Lake outlet stream will be closed from April 01 through June 30 and then from August 20 through September 15. Fishers are permitted four Chinook salmon per day, only two of which may be larger than 65 cm fork length. The daily limit for coho salmon is four fish, only two of which may be larger than 50 cm fork length. The aggregate daily limit for salmon is four fish and the possession limit is eight fish. The annual harvest of Chinook salmon over 65 cm fork length is limited to ten fish.

The Taku River commercial fishing area extends from approximately 50 metres (165 ft) upstream of the Canada/U.S. border to boundary signs located near Yellow Bluff, approximately 18 kilometres (11 miles) upstream and excluding Flannigan and South Fork sloughs. The vast majority of fishing effort occurs downstream of the Tulsequah River.

The 2015 bilaterally agreed on preseason forecast of 26,100 large Chinook salmon is not sufficient for a directed commercial fishery. Consequently a directed commercial fishery will not be prosecuted unless reliable inseason run projections are considerably higher, i.e. at least 31,900 fish plus the assessment fishery target of 1,400 fish; the earliest that this could be anticipated is mid-May (i.e. after SW21). If these estimates support an AC, weekly guideline harvests will be established to apportion catch over the fishing season in order to avoid overharvesting any particular component of the run. Additionally, the AC will be reduced by 30% due to the low production of Taku River Chinook salmon observed in recent years. Net mesh size will be restricted to between 100 mm (4 inches) and 204 mm (8 inches). Overall net length will be restricted to a maximum of 36.6 m (120 ft), for both drift and set-nets

The inseason management of Taku River Chinook salmon depends on abundance estimates generated from the joint MR program in the lower Taku River with tags being applied at Canyon Island and recoveries typically being made in the Canadian test and/or commercial fisheries or other agreed to recovery methodology. The fishery will begin the season in assessment mode and serve as the test fishery identified in the PST agreement. As such, the 2015 fishery will be initiated and managed to the weekly catch targets developed for the test fishery. Shortfalls/overages will be apportioned over the remaining weeks of the assessment fishery.

Table 6. Total weekly guideline harvest limits for Taku Chinook assessment fishery assuming three openings per week (max. 4) beginning Sunday noon and average run timing.

Statistical Week (SW)	Cumulative	Round	Weekly
SW19	147	150	150
SW20	433	430	280
SW21	752	750	320
SW22	924	920	170
SW23	1,099	1,100	180
SW24	1,258	1,260	160
SW25	1,400	1,400	140

*Note: Day 4 timing of each SW used to calculate the weekly harvest limits as 3 openings would typically end on the 4th day of the week. Weekly targets rounded to the nearest 10's.

In the event that reliable run projections (i.e. estimates made post SW21) fall below an escapement of 16,150 fish, suspension of the assessment fishery will be considered.

The assessment (test) fishery will open at 12:00 noon Sunday, May 3. Extensions and adjustments to weekly fishing periods will be made with the intention of achieving the weekly assessment targets. Attempts will be made to spread the weekly harvest over three openings, to a maximum of four. Mesh sizes will be restricted to between 100 mm (four inches) and 204 mm (8 inches) and net length will be up to 36.6 m (120 ft). Use of set nets will be prohibited during the assessment fishery. As mentioned above, if reliable inseason run projections are greater than 31,900 (plus the assessment fishery target of 1,400 fish) large Chinook salmon, a directed Canadian commercial fishery may be considered in accordance with weekly projections of terminal run size and guideline harvests. The Canadian catch will be managed with the objective of meeting escapement and agreed Canada/U.S. and domestic harvest sharing objectives.

Harvest Information Sharing

The U.S. shall provide to Canadian managers harvest and effort data by statistical week for the District 111 drift gillnet, sport, troll and personal use fisheries.

Canada shall provide to U.S. managers harvest and effort data by statistical week in the commercial and test fisheries and for the season in the First Nation and recreational fisheries.

Stock Assessment Program

Each country shall:

1. provide harvest statistics for the same strata as sockeye salmon are reported;

2. sample its fisheries for CWTs, spaghetti tags, and GSI (U.S. D111 Marine);

3. conduct escapement and stock assessment programs as resources permit (see Appendix Table 4 for projects anticipated to be conducted in 2015).

Stock Composition of U.S. Harvests

Chinook salmon harvested in Alaska will be sampled for CWTs. The minimum sampling goal is 20% of the harvest; the target for 2015 is 30%.

Stock composition for sport and commercial harvest will be determined postseason. Tissue samples will be taken from sport and commercially harvested Chinook salmon in District 111 and processed postseason by ADF&G Gene Conservation Laboratory in Anchorage. Genetic stock identification (GSI) will be used to recalculate contributions of above border Taku River Chinook salmon in the District 111 sport and commercial fisheries. In the absence of GSI data, CWT data will be used to determine stock composition postseason. Scales will be collected inseason and analyzed postseason to determine the age structure composition of the harvest.

Stock Composition of Canadian Harvests

Mixed stock Chinook salmon DNA samples will be collected in the Taku River commercial and assessment fisheries for stock identification analysis. A minimum of 40% of the Chinook salmon harvested in the commercial fishery and all of the assessment fishery will be examined for adipose clips for CWT's. Further details on these sampling programs are summarized in Appendix Table 4.

Spawning Escapement Estimates

System-wide escapement will be determined by the joint Canada/U.S. MR program. Head water areas will be sampled using a variety of methods including carcass weirs, angling, aerial surveys, etc. (Appendix Table 2). Fish will be sampled for age, length, and sex.

Sockeye Salmon

Preseason Forecast

The Canadian produced preseason forecast for the terminal run of wild Taku River sockeye salmon in 2015 is approximately 216,000 fish, which is above the recent 10-year average run size of 175,000 fish. This forecast is the average of a sibling-based forecast of 214,300 sockeye salmon, and a stock-recruitment based forecast of 217,600 sockeye salmon. If the run comes in as expected, the TAC of wild sockeye salmon will be approximately 141,000 fish.

The sibling forecast is based on the historical (1989–2014) relationship between the number of age-5 sockeye salmon in year (t) and the number of age-4 sockeye salmon in year (t-1):

$$N_{5(t)} = 43{,}300 + 1.34 \bullet N_{4(t-1)} \qquad [4]$$

where: $N_{5(t)}$ = return of age-5 in year(t); and
$N_{4(t-1)}$ = return of age-4 in year(t-1).

The correlation coefficient (r^2) of this relationship = 0.39, df = 25. The preliminary estimate of the return of age-4 sockeye salmon in 2014 is 62,584 fish, which, when substituted into equation [4], gives a predicted age-5 return of 127,295 fish in 2015. On average, Taku River sockeye salmon returns are 59% age-5. Based on this, the predicted age-5 return expands to a total terminal run sibling forecast of 215,985 wild sockeye salmon in 2015.

The stock recruitment forecast for wild fish is based on the historical relationship between the number of spawners (composite of all Taku River stocks) and the subsequent returns, described by the following equation:

$$\ln(R/S) = 2.115 - 0.000013 \bullet S \qquad [5]$$

where: R = total adult return; and
S = number of spawners.

Equation [5] above is based on the estimated return of spawners from the 1984 to 2008 brood years and the subsequent age-specific returns from these escapements.[8] The relationship is significant at a level of α=0.05. The estimated numbers of spawners from the principal brood years were 85,950 fish in 2010 and 109,795 fish in 2011. The calculated returns per spawner for these years based on equation [5] are 2.6 and 1.9, respectively. Assuming that the fish from these brood years mature as per the average age-at-maturity (61% age-5, 30% age-4, 4% age-6, and 5% age-3), the forecast terminal run size for 2015 is 215,985 wild sockeye salmon, based on stock-recruitment data. Historical performance of the preseason forecast compared to postseason run size is detailed in Table 7.

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[8] Escapement estimates for 1981 and 1985 were based on the Canyon Island mark–recapture program. Annual age-specific returns were estimated assuming the inriver age composition, determined from sampling in the Canadian commercial fishery, was representative of the entire run.

Table 7. Taku River wild sockeye salmon preseason run forecasts vs. postseason run size estimates, 1994 to 2015 (2009 - 2014 refer to terminal run; previous years are total run).

Year	Preseason Forecast[a]	Postseason Run Size	Forecast Performance[b]
1994	237,500	229,642	3%
1995	211,300	231,300	-9%
1996	219,000	316,225	-31%
1997	285,200	171,233	67%
1998	238,100	137,230	74%
1999	202,884	175,761	15%
2000	273,168	243,933	12%
2001	250,451	382,101	-34%
2002	293,113	250,271	17%
2003	303,802	327,946	-7%
2004	231,153	202,386	14%
2005	272,106	186,720	46%
2006	169,284	227,875	-26%
2007	211,733	161,545	31%
2008	181,038	145,239	25%
2009	213,028	118,625	80%
2010	195,887	153,207	28%
2011	230,685	201,875	14%
2012	197,313	193,584	2%
2013	254,974	184,411	38%
2014	190,000	141,331	34%
2015	216,000		
2005-2014	Average absolute difference from postseason run size		+/- 32%

Note:

Data source: *Preliminary Estimates of Transboundary River Salmon Production, Harvest, and Escapement and a Review of Joint Enhancement Activities in 2014*

a) preseason forecast based on an average of sibling and stock-recruitment forecasts except for 1995 and 2007–2010 which were based solely on stock-recruitment.

b) the forecast expressed as % deviation from postseason estimate. A negative number indicates the forecast was lower than the estimated run.

Tatsamenie Sockeye Salmon

The outlook for Tatsamenie sockeye salmon is for a below average run. The escapements to Tatsamenie Lake in 2010 and 2011, the primary brood years for 2015 returns, were 3,513 and 7,880 fish, respectively. For comparison, the previous 10-year average was approximately 9,000 fish. Combining forecasts for wild and enhanced components of the run, the 2015 forecast is approximately 11,700 sockeye salmon, which is below the average run size of 18,800 fish estimated using assumptions outlined in the following section.

The 2015 forecast for the terminal run of enhanced Tatsamenie Lake sockeye salmon is 6,700 fish, which is close to the recent 10-year average of 7,600 fish. This outlook is the average of smolt- and combined smolt/sibling-based forecasts. The smolt-based forecast, 5,792 fish, uses out-migration estimates at Tatsamenie Lake over the period 2010-2013, average age-at-return of 27%, 69%, and 4% for age classes 4, 5, and 6, respectively, and the recent five-year average enhanced smolt to adult survival of 4.7%. The 2012 and 2013 out-migrations of approximately 69,000 and 264,000 enhanced smolts respectively, are expected to be the primary contributors to the 2015 run, returning as age 4 and 5 fish. Smolt size has been shown to be positively correlated with survival; the body weights of the 2012 and 2013 smolts were 6.4 and 5.2 grams respectively, which were above the previous 5-year average of 4.8 grams. Regarding the sibling forecast, the return of enhanced age-4 fish in 2014 is estimated at 1,552 fish; using the sibling relationship (r-square = 0.75), approximately 4,154 age-5 fish can be expected in 2015. Adding the expected number of age-4 fish from the smolt-based forecast results in a combined smolt/sibling-based forecast of 7,577 fish (Note: for the purposes of this forecast the freshwater age of all enhanced fish (including non-overwintering fish) is assumed to be age-1 since freshwater age is not readily available for returns and on average age-2 fish comprise less than 2% of outmigrants).

The estimated outmigrations of wild smolts from Tatsamenie Lake in 2012 and 2013, the primary outmigrations expected to contribute to the 2015 run, were 60,000 and 307,000 fish, respectively. In comparison, the previous 5-year smolt outmigration averaged 237,000 fish. Assuming that both the maturity schedule and the recent 5-year average survival rate of wild smolt is comparable to that of enhanced smolt, a run of about 6,100 wild fish is expected in 2015. For comparison, assuming the average exploitation rate for wild fish is the same as that for enhanced fish, the average run size of wild fish is approximately 10,200 fish (average escapement of 6,151 wild fish divided by average exploitation rate of 0.61). The body weights of age-1+ wild smolt in 2012 and 2013 were 4.5 and 4.4 grams, respectively, which are close to the previous 5-year average of 4.2 grams.

The escapement of sockeye salmon to Tatsamenie Lake has bearing on the Canada/U.S. egg take program. Based on a fecundity of approximately 4,000 eggs per female, equal sex ratios, a broodstock holding success rate of 80%, along with the guideline that no more than 30% of the escapement can be utilized for enhancement purposes, an escapement of about 4,000 sockeye salmon would be needed to achieve the maximum egg take of 2.0 million eggs referred to in the 2015 Taku Enhancement Production Plan.

Escapement Goals

The Taku River sockeye salmon spawning objective is a range from 71,000 to 80,000 fish with a point goal of 75,000 fish.

Harvest Sharing Objectives

Harvest sharing agreements between Canada and the United States for Taku River sockeye salmon are dictated by Annex IV, Chapter 1 of the PST and are in effect through 2018.

Sockeye salmon arrangements for the 2009–2018 period as specified in the PST include the following:

- Directed fisheries on Taku River sockeye salmon will occur only in the Taku River drainage in Canada, and in District 111 in the U.S.
- Annual abundance of the wild run of Taku River sockeye salmon will be estimated by adding the catch of wild run sockeye salmon in U.S. District 111 to the estimated above-border passage of wild run sockeye salmon. The annual Total Allowable Catch (TAC) of wild run Taku River sockeye salmon will be estimated by subtracting the agreed spawning escapement goal from the annual abundance estimate.
- The management of U.S. and Canadian fisheries shall be based on weekly estimates of the TAC of wild sockeye salmon.
- The primary management objective of the Parties is to achieve the agreed spawning escapement goal. If the projected in-river escapement of wild run sockeye salmon is greater than 1.6, or other agreed factor, times the agreed spawning escapement goal, Canada may, in addition to its share of the TAC, harvest the projected surplus in-river escapement apportioned by run timing.

- For inseason management purposes, identifiable enhanced Taku River origin sockeye salmon will not be included in the calculations of the annual TAC. Notwithstanding the paragraph below, enhanced sockeye will be harvested in existing fisheries incidentally to the harvest of wild Taku River sockeye salmon.

- It is anticipated that surplus enhanced sockeye salmon will remain unharvested in existing commercial fisheries due to management actions required to ensure the wild spawning escapement. Canada may implement additional fisheries upstream of the existing commercial fishery to harvest surplus enhanced sockeye salmon.

- Both Parties agree to the objective of increasing sockeye salmon runs in the Taku River. The United States long-term objective is to maintain the 82% U.S. harvest share of wild Taku River sockeye salmon only adjusted based on documented enhanced sockeye salmon returns. Canada's long-term objective is to achieve an equal sharing arrangement for sockeye salmon. The Parties agree to continue to develop and implement a joint Taku River enhancement program intended to eventually produce annually 100,000 returning enhanced sockeye salmon.

- The Parties annual TAC share of Taku River sockeye salmon will be as described in Table 8.

Table 8. U.S and Canadian harvest shares of Taku River sockeye salmon.

Enhanced Production	U.S. TAC Share	Canadian TAC Share
0	82%	18%
1 – 5,000	80%	20%
5,001 – 15,000	79%	21%
15,001 – 25,000	77%	23%
25,001 – 35,000	75%	25%
35,001 – 45,000	73%	27%
45,001 – 55,000	71%	29%
55,001 – 65,000	69%	31%
65,001 – 75,000	68%	32%
75,001 – 85,000	67%	33%
85,001 – 95,000	66%	34%
95,001 – 100,000	65%	35%

The Parties' performance relative to these catch shares will be based on the post season analysis of documented production of enhanced sockeye salmon.

1. A Taku Enhancement Production Plan (TEPP) shall be prepared annually by the Committee by February 1. The TEPP will detail the planned enhancement activities to be undertaken by the Parties and the expected production from site specific egg takes, access improvements and all other enhancement activities outlined in the annual TEPP. The Committee will use these data to prepare an initial enhancement production forecast based on the best available information.

2. The Panel shall review the annual TEPP and make recommendations to the Parties concerning the TEPP by February 28.

3. The Committee shall annually review and document joint enhancement projects and activities undertaken by the Parties, including the estimated returns of identifiable and unidentifiable enhanced sockeye salmon, and present the results to the Panel during the annual post season review.

Management Procedures

A similar management process as described for Chinook salmon will be followed for sockeye salmon whereby inriver population estimates from the joint MR program will be used to project inseason run sizes and inseason data exchange and review will occur between parties. Management agencies will collaborate to work toward joint inriver MR estimates with agencies alternating as the lead each week and the U.S. to initiate the first inseason estimate. A similar approach will be taken for projecting terminal run sizes.

A coordinated management focus on Tatsamenie sockeye salmon in Taku Inlet and inriver has occurred in the past. Management measures during these periods have attempted to ensure adequate numbers of sockeye salmon escape to Tatsamenie Lake to support wild production and egg-take objectives. If conservation concerns arose, e.g. due to depressed CPUE in fisheries and/or inriver assessment programs, management actions may include conservative and/or reduced fishing time. Given the outlook for a below average run, managers will be closely monitoring stock assessment data inseason to determine if special management measures will be required for the Tatsamenie stock in 2015.

United States

Directed sockeye salmon fishing in District 111 traditionally opens for a 72-hour fishing period beginning noon on the third Sunday in June (June 21, SW26). Depending on the development of the Taku River Chinook salmon return, Chinook salmon conservation measures including restrictions in time, mesh size (6-inch maximum), and area (Taku Inlet, north of Jaw Point closed) may be imposed. District 111 will be managed through mid-August primarily on the basis of sockeye salmon abundance. Taku River sockeye salmon abundance will be evaluated using District 111 overall harvest and CPUE data and weekly inriver run size estimates from the Taku River MR program. Contributions of enhanced sockeye salmon will be estimated inseason by analysis of salmon otoliths sampled from commercial harvests. For purposes of inseason run size estimation, average weekly historical stock composition data will be used to estimate the contribution of wild Taku River and Port Snettisham sockeye salmon contributions to the harvest. The above data will be used to generate weekly estimates of the terminal Taku River sockeye salmon run size, U.S. Taku River sockeye salmon TAC and U.S. harvest of Taku River sockeye salmon. The age and stock compositions of the harvest of wild sockeye salmon stocks will be revised postseason by analysis of GSI data derived from sampling harvests and escapements.

Returns from domestic hatchery programs are expected to contribute significantly to the District 111 fishery in 2015. The forecast return of Snettisham Hatchery sockeye salmon is 214,000 fish. DIPAC's summer chum salmon return to Gastineau Channel and Limestone Inlet is forecast to be 755,000 fish. Portions of these returns will be available for incidental harvest in the directed wild sockeye salmon fisheries in Taku Inlet. Fishing time may be extended in Stephens Passage south of Circle Point during July to harvest hatchery returns of summer chum salmon to Limestone Inlet and during August to harvest returns of Snettisham Hatchery sockeye salmon.

A personal use fishery in U.S. portions of the Taku River was established by the Alaska Board of Fisheries in 1989 and will operate during the month of July in 2015. The legal gear type is set nets, not to exceed 15 fathoms in length. The seasonal bag limit is five sockeye salmon for a household of one, or ten sockeye salmon for a household of two or more persons. Fishing is not allowed within 100 yards of the U.S./Canada research fish wheels.

Canada

For the sockeye salmon season, a directed commercial fishery will commence at 12:00 noon Sunday, June 21 (SW26) restricted to a 48-hour period due to the poor returns observed at Kuthai Lake over the last ten years. Additional measures may also be implemented based on Chinook salmon considerations. As per the Chinook salmon fishery, the maximum net length will be 36.6 m (120 ft) for both drift- and set-nets. If there are Chinook salmon conservation concerns, a maximum mesh size restriction of 140 mm (approximately 5.5 inches) will be in effect through SW27 (ending July 4). Canadian sockeye salmon management decisions for the Taku River fishery (Figure 3) will be based on weekly projections of terminal run sizes of wild and enhanced fish, TAC, and the escapement of wild stocks.

The weekly sockeye salmon TAC projections (wild stocks) will be made using the following calculations:

$$\mathbf{TAC_{(w)} = [(E_{w(t)} + C_{w(t)} + A_{w(t\text{-}1)}) / \rho_{w(t)}] - E_w}$$

Where: $TAC_{(w)}$ = the projected total allowable catch of wild *w* sockeye salmon for the season;
$E_{w(t)}$ = the cumulative escapement to week *t* based on MR data;
$C_{w(t)}$ = the cumulative Canadian wild catch to week *t*;
$A_{w(t-1)}$ = the estimated cumulative U.S. catch of wild Taku sockeye salmon to the preceding week t-1 (preceding week used to allow for migration time).
$\rho_{w(t)}$ = the estimated proportion of run through to week *t* determined from the average inriver run timing based on historical in-river CPUE data. (Run timing estimates will be adjusted inseason according to inseason CPUE data relative to historical data in both U.S. and Canadian fisheries);
E_w = the system-wide escapement goal for wild stocks. (A value of 75,000 fish will be used which is close to the midpoint in the interim range of 71,000 to 80,000 fish).

The PST harvest sharing provisions will be applied to the weekly wild sockeye salmon TAC projections to guide the management of the commercial fishery. Run timing will be used to apportion the projected Canadian allowable catch each week and to make projections of the total escapement. The Canadian catch will be adjusted with the objective of meeting escapement and agreed Canada/US harvest sharing objectives. Since it is expected the production of enhanced sockeye salmon will be between 5,001 and 15,000 fish, Canada's harvest share will be 21% of the TAC. If inseason projections of enhanced fish drop below 5,000 fish or rise above 15,000 fish, Canada's share will be adjusted as per the harvest sharing provisions of the PST.

Low escapements of the Kuthai Lake sockeye salmon stock continue to be of concern. The duration of openings in SW26-27 (June 21 – July 4) may be reduced if it appears that the escapement of the Kuthai Lake stock is at risk of being compromised. During SW31-33 (July 26 - August 15), management attention will focus on Tatsamenie sockeye salmon to ensure adequate numbers of sockeye salmon escape to Tatsamenie Lake to support wild production and egg-take objectives.

Harvest Information Sharing

The U.S. shall provide harvest and effort data in the following strata for each statistical week:

1. District 111 (Subdistricts 111- 20, 31, 32, 33, 34);

2. Taku River personal use fishery (season estimate).

Canada shall provide harvest and effort data in the following strata for each statistical week:

1. Taku River commercial fishery;
2. First Nation fishery (season estimate).

Stock Assessment Program

Stock Composition of U.S. Harvests

The District 111 drift gillnet sockeye salmon harvest will be sampled weekly to obtain 300 matched genetic tissue, otolith, and ASL samples in both subdistrict 111-31 and 111-32. Otolith samples collected inseason will be sent to the ADF&G Mark, Tag, and Age Laboratory in Juneau to be processed and analyzed, within two days of the end of the fishing period, for contributions of enhanced Taku, Stikine, and Port Snettisham sockeye salmon. Proportions of enhanced fish, combined with inriver MR data, will be used in weekly Taku Management Models to estimate the wild sockeye salmon terminal run size.

Postseason, the matched GSI/otolith samples collected inseason will be used to estimate weekly contributions of wild and enhanced sockeye salmon stocks in the District 111 drift gillnet fishery.

Stock Composition of Canadian Harvests

To evaluate the contribution of enhanced sockeye salmon to the Canadian inriver commercial harvest, 192 otoliths will be collected per week from the inriver commercial gillnet fishery. Otolith samples collected inseason will be flown from Canyon Island, Taku River, to Juneau every Wednesday afternoon. Inseason processing of otoliths by the ADF&G Mark, Age, and Tag Lab (MTA) will be completed within two days of delivery. Data collected from sampled otoliths will be used both inseason and postseason to estimate the contribution of enhanced Tatsamenie sockeye salmon. In addition, at least 125 genetic samples will be collected each week for postseason stock composition analysis.

Spawning Escapement Estimates

System-wide escapement will be determined by the joint Canada/U.S. MR program. Adult enumeration weirs will be used to estimate escapements of sockeye to Tatsamenie, Little Trapper, Kuthai and possibly King Salmon lakes. The age composition will be estimated from scale samples, and contributions of enhanced sockeye salmon will be determined from otolith samples. Approximately 750 fish will be sampled during the season for age, length, and sex; 400 otoliths will be taken from Tatsamenie broodstock.

Coho Salmon

Preseason Forecast

The forecast for the total run of Taku River coho salmon in 2015 is 158,500 fish which equates to an inriver run of about 99,900 fish assuming an average harvest rate of 37%. The 2015 total run forecast is similar to the 2014 and 2013 forecasts of 162,787 and 164,078 fish, respectively, and was generated using the relationship between the CPUE in smolt tagging and the total run estimates seen over the past eighteen years.

Escapement Goals

In 1999, the PST called for developing a revised escapement goal for coho salmon no later than May 1, 2004. A detailed analysis of the Taku River coho salmon escapement goal was completed in 2004. Staff who conducted that analysis recommended that a modified escapement goal not be adopted until production from the very high escapements in 2002 and 2003 could be included in the analysis. The revised Transboundary Chapter of Annex IV of the PST obliged the Parties to develop an agreed MSY escapement goal prior to the 2010 fishing season. A preliminary report was reviewed by CSAP in the fall of 2010 and it was determined that additional information should be included in the analysis and the report was not finalized at that time. In 2013, DFO reconfirmed its commitment to conduct updated scientific analysis of the Taku River coho salmon escapement goal and completed that analysis in the fall of 2014. In 2014, the TTC recommended a point goal of 70,000 coho salmon with a range of 50,000 to 90,000 fish to the TBR Panel and this goal was adopted in 2015.

Harvest Sharing Objectives

Coho salmon arrangements for 2015 as agreed by the TBR Panel in February of 2015 to replace Chapter 1 provision 3(b)(2) are:

- The escapement goal range is 50,000 to 90,000 fish, with a MSY point escapement goal of 70,000 fish;
- The MSY point escapement goal will be used by U.S. and Canadian fishery managers as the spawning escapement target for the above-border coho salmon run during pre-season and inseason management activities;
- A directed Canadian harvest of 5,000 coho salmon is allowed for assessment purposes as part of the joint Canada/U.S. Taku River mark recapture program;
- Canada may harvest all coho salmon that pass above the border in excess of both the MSY point escapement goal and 5,000 fish assessment fishery.

Management Procedures

United States

Beginning in mid-August, management of the District 111 drift gillnet fishery will be based on the run strength of coho salmon. Inseason management will be based on evaluation of fishery harvest, effort and CPUE relative to historical levels, recovery of CWTs from fishery sampling, and inriver run size estimates from the Taku River MR program. The U.S. will manage its fisheries to allow a minimum above border run of approximately 75,000 coho salmon. A substantial return of coho salmon is also expected to the Macaulay Hatchery in Gastineau Channel. Portions of these returns will be available for incidental harvest in the directed coho salmon fisheries in Taku Inlet.

Canada

In mid-August (SW34, starting August 16), management actions will shift to coho salmon. The in-river coho salmon projections will be based on the following simplified formula:

$$R_{IR(ACI)} = R_{IR(ACI)} t/T$$

Where: $R_{IR(ACI)}$ = projected total inriver run above Canyon Island;
$R_{IR(ACI)}t$ = estimated run size to time “t” based on MR data;
T= average cumulative run timing at Canyon Island through time “t”.

Inseason management will be based on evaluation of fishery harvest, effort and CPUE data relative to historical levels and inriver run size estimates from the Taku River MR program. Based on the newly adopted escapement goal of 70,000 fish, Canada will endeavor to manage to the agreed goal and harvest the surplus above escapement needs in a combination of commercial and assessment fisheries. In the event reliable inriver run projections fall below 50,000 fish, no commercial or assessment fishing will take place.

To address chum salmon conservation concerns, the retention of chum salmon will be prohibited throughout the season. In addition, fishers must release any steelhead caught. It is anticipated that the commercial fishery will remain closed for pink salmon unless markets are developed.

Stock Assessment Program

Coho salmon will be sampled for CWT's to determine the contribution of Taku River and enhanced origin fish.

Inseason Data Exchange and Review

Canada and the U.S. will conduct data exchanges by telephone and/or email on Wednesday afternoon or Thursday morning of each week during the fishing season. At that time, current harvest statistics and stock assessment data will be updated, exchanged, and reviewed. Management plans for the next week for each country will be discussed at this time. It is anticipated that additional communications will be required each week. Weekly decision deadlines will be: a) for Districts 111, 11:00 a.m., Thursday, Alaska Daylight Time; and, b) for the Canadian Taku River fishery, 10:00 a.m., Friday, Pacific Daylight Time. Weekly summaries of the fisheries results will be conducted frequently throughout fishing periods through telephone calls and/or email between management offices of DFO and ADF&G.

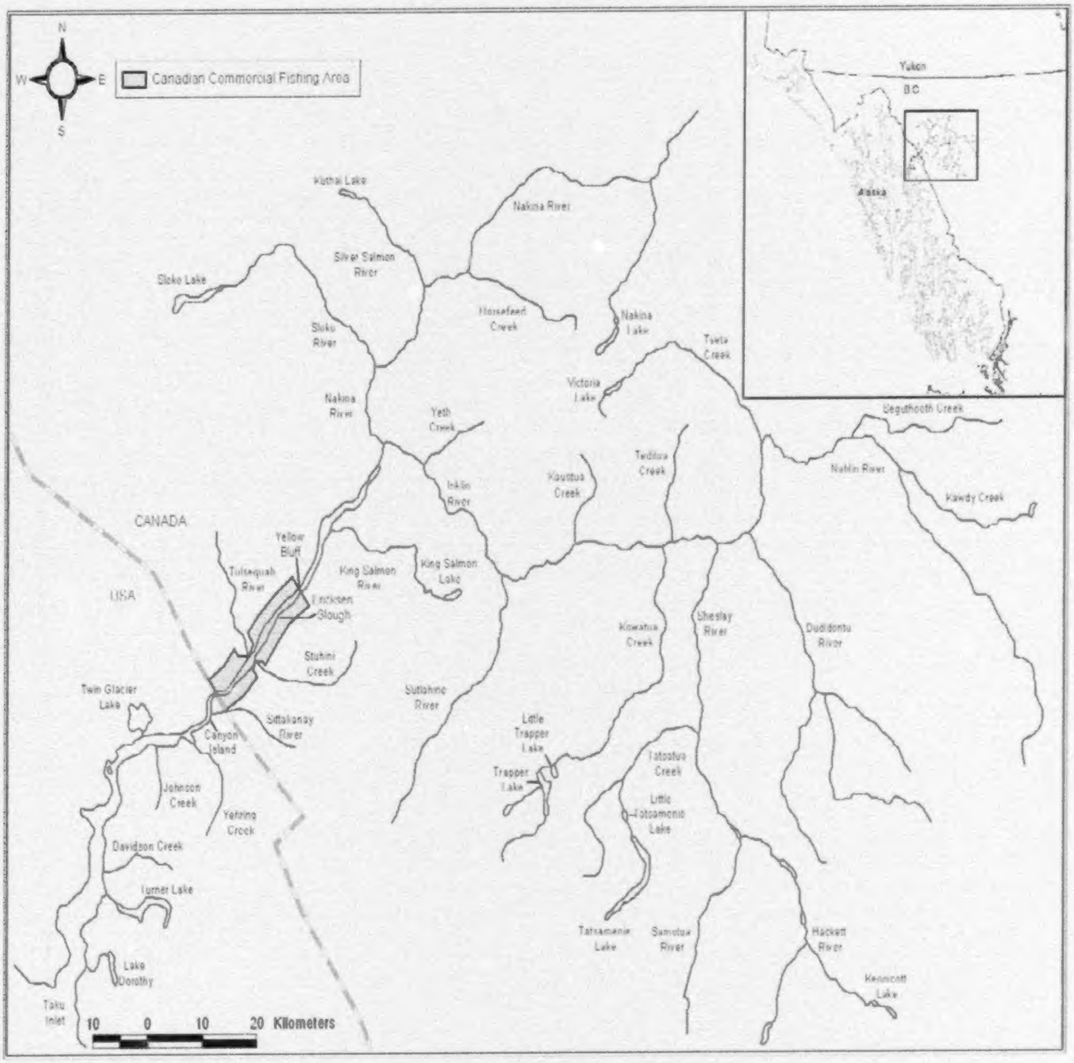
N
W
E
S
Canadian Commercial Fishing Area
Yukon
B.C.
Alaska
Kuthai Lake
Nakina River
Sloko Lake
Silver Salmon River
Horsefeed Creek
Sloko River
Nakina Lake
Tseta Creek
Victoria Lake
Nakina River
Yeth Creek
Beguthooth Creek
Teditua Creek
Kaustua Creek
Inklin River
Nahlin River
Kawdy Creek
CANADA
USA
Yellow Bluff
Tulsequah River
King Salmon River
King Salmon Lake
Ericksen Slough
Stuhini Creek
Kowatua Creek
Shesley River
Dudidontu River
Twin Glacier Lake
Sittakanay River
Sutlahine River
Canyon Island
Little Trapper Lake
Trapper Lake
Tatsatua Creek
Johnson Creek
Yehring Creek
Little Tatsamenie Lake
Davidson Creek
Turner Lake
Tatsamenie Lake
Samotua River
Hackett River
Lake Dorothy
Kennicott Lake
Taku Inlet
10 0 10 20 Kilometers

Figure 3. The Taku River showing Canadian commercial fishing area.

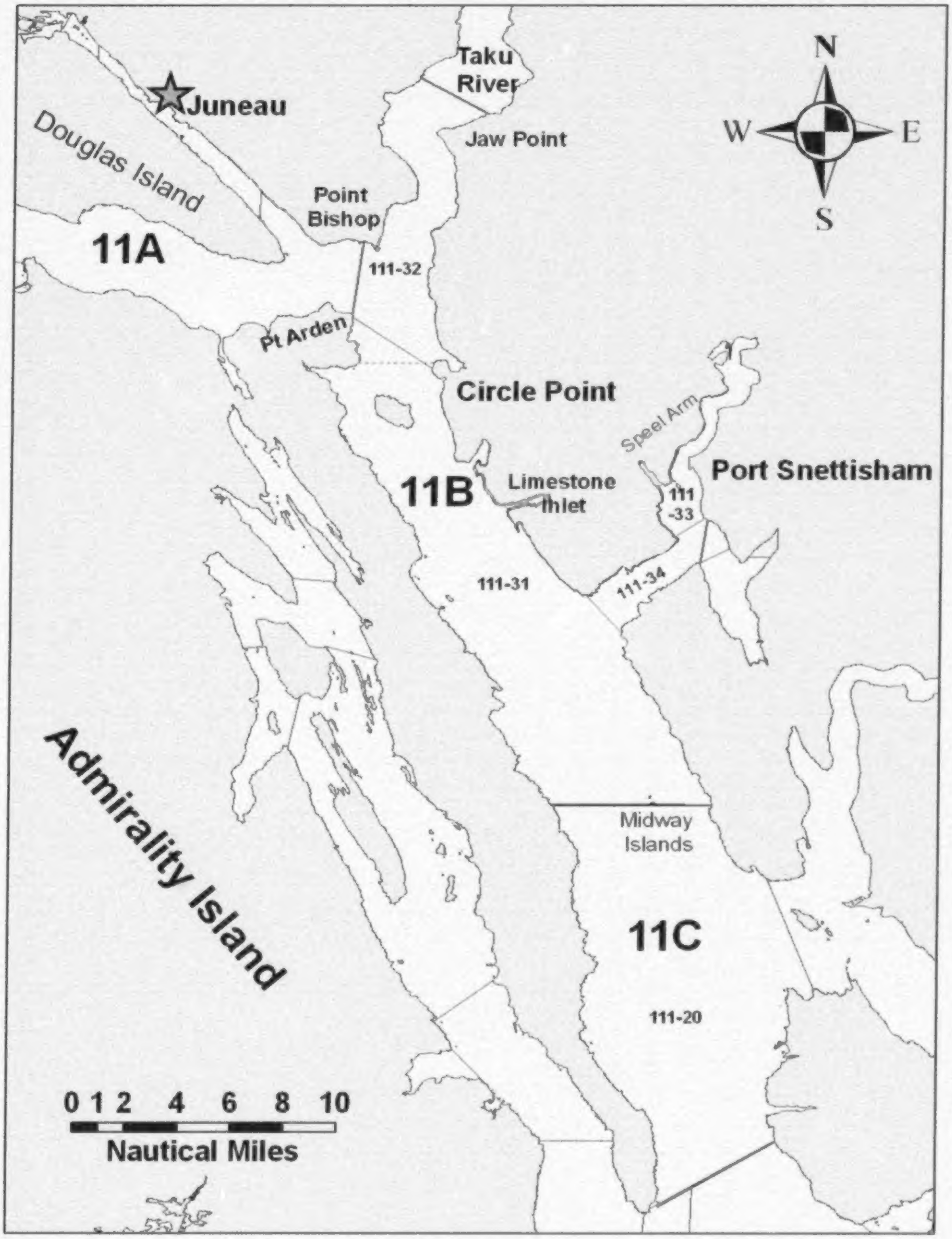
Taku River
Juneau
Douglas Island
Jaw Point
N
W
E
S
Point Bishop
11A
111-32
Pt Arden
Circle Point
Speel Arm
Port Snettisham
11B
Limestone Inlet
111-33
111-34
111-31
Admirality Island
Midway Islands
11C
111-20
0 1 2 4 6 8 10
Nautical Miles

Figure 4. U.S. fishing areas adjacent to the Taku River

(see Figure 5 for specific Chinook salmon management areas).

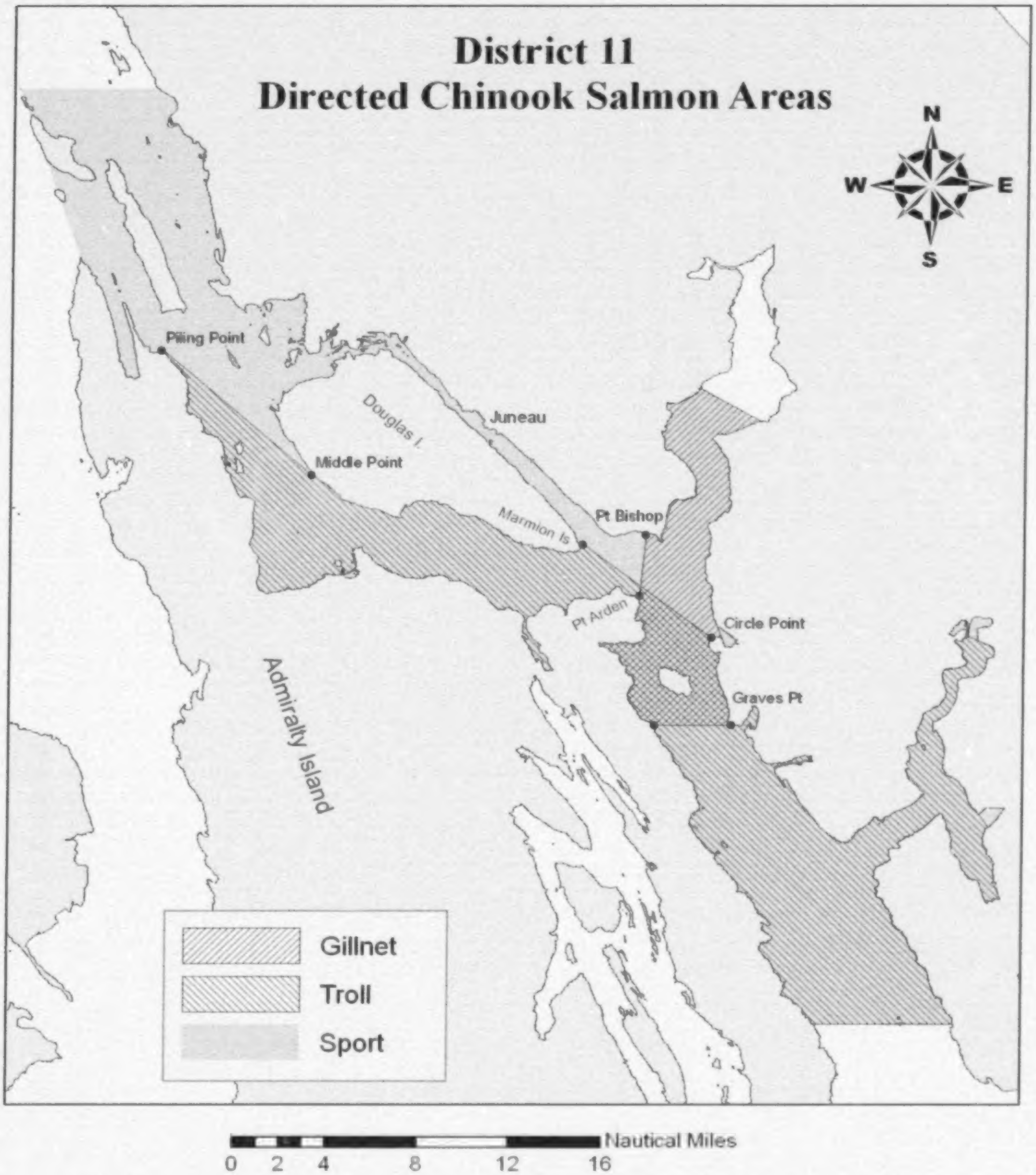
District 11
Directed Chinook Salmon Areas
N
W
E
S
Piling Point
Douglas I.
Juneau
Middle Point
Marmion Is
Pt Bishop
Pt Arden
Circle Point
Graves Pt
Admiralty Island
Gillnet
Troll
Sport
0
2
4
8
12
16
Nautical Miles

Figure 5. U.S. directed Taku River Chinook salmon fishing areas.

ALSEK RIVER

Salmon stocks returning to the Alsek River drainage (Figure 6) are jointly managed by DFO, the Champagne and Aishihik First Nation (CAFN) and ADF&G through the joint TCTR of the PSC.

The principal U.S. fishery that targets Alsek River stocks is a commercial set gillnet fishery that operates in Dry Bay at the mouth and within approximately 20 km up the Alsek River. A small subsistence fishery also operates in Dry Bay. U.S. fishers harvest the full mixture of Alsek River stocks.

The principal Canadian fisheries occur in the upper Tatshenshini River drainage. A traditional aboriginal (FSC) fishery takes place in the upper Tatshenshini River drainage. At present, approximately, 100-150 members of CAFN harvest salmon via traditional and non-traditional methods (gaffs, traps, rod and reel, nets, weir), primarily, in the Klukshu River, and to a lesser extent, in Village Creek, Blanchard River, and Goat Creek. Recreational fisheries take place primarily on the Tatshenshini River in the Dalton Post area and on the Takhanne and Blanchard rivers.

Most Alsek Chinook, sockeye and coho salmon spawn in Canada, but spawning occurs in U.S. tributaries as well.

In February 2013, the bilateral TTC and bilateral TBR Panel agreed to the revised biological escapement goals for Alsek River Chinook and sockeye salmon. These were: Alsek River Chinook MSY target of 4,700 (esc. goal range 3,500 – 5,300), Klukshu River Chinook MSY target of 1,000 (esc. goal range of 800 – 1,200), Alsek River sockeye MSY target of 29,700 (esc. goal range of 24,000 – 33,500), and Klukshu River sockeye MSY target of 9,700 (esc. goal range 7,500 – 11,000).

Preseason Run Outlooks

The Klukshu River Chinook escapements in 2009 and 2010 were 1,518 and 2,259 Chinook salmon, respectively. For comparison the recent 10-year average is approximately 1,100 Chinook salmon. The 2009 and 2010 brood year escapements were above the escapement goal range of 800 to 1,200 Chinook salmon as determined from the current stock-recruitment analysis. Based on these primary brood year escapements, the production outlook for 2015 is 2,000 (reduced by 15% to account for forecast error) Klukshu River Chinook salmon, above the recent 10-year average of approximately 1,400 fish and above the revised escapement goal range.

The 2015 overall Alsek River drainage sockeye salmon run is expected to be approximately 84,000 fish; this is above the recent 10-year average run size estimate of approximately 63,000 sockeye salmon. The outlook for 2015 is based on a predicted run of 19,400 Klukshu River sockeye salmon derived from the latest Klukshu River stock-recruitment data (2011 Eggers et al.) and an assumed Klukshu River contribution to the total run of 23%, which is based on mark-recapture results (2000-04) and run size estimates using GSI (2005-06, 2011). Principal contributing brood years will be 2010 (Klukshu River escapement of 18,550 sockeye salmon) and 2011 (Klukshu River escapement of 20,800 sockeye salmon); the 10-year average Klukshu River sockeye salmon escapement is approximately 14,500 fish. Based on the current stock-recruitment analysis, the range of Klukshu River escapements that appears most likely to produce optimum yields is 7,500 to 11,000 sockeye salmon.

The Klukshu River early sockeye salmon run counts in 2010 and 2011 were 5,073 and 5,635 fish, respectively. The recent 10-year average count is approximately 2,500 sockeye salmon which is above the minimum management target of 1,500 fish used by DFO. The early run to the weir is expected to be above this level in 2015.

The coho salmon escapements at the Klukshu River weir in 2011 (2,110 fish) and 2012 (1,270 fish) suggest the run in 2015 will be above average. The recent 10-year average weir count is approximately 2,000 coho salmon.

There is much uncertainty with these outlooks. Recent survivals of Chinook and sockeye salmon have been highly variable, therefore, developing accurate forecasts has been problematic.

Management Approach for the 2015 Season

The principal escapement monitoring tool for Chinook and sockeye salmon stocks in the Alsek River is the Klukshu River weir.

The Department of Fish and Game will manage the Dry Bay commercial set gillnet fishery to achieve the agreed upon escapement goal range plus 3,000 sockeye salmon as per the 2009-2018 agreement reached during successful Transboundary PST negotiations in February 2008.

United States

In 2015 the U.S. fisheries will open downstream from a marker located three miles below the southern end of Alsek Basin on June 7 for 24 hours. The remainder of this fishery will be managed on sockeye salmon run strength which is expected to be above average in 2015. The top end of the BEG for sockeye salmon was exceeded in both 2010 and 2011. Although the 2015 outlook suggests an average to above average sockeye salmon escapement, management strategies will continue to be conservative until it can be ascertained that the BEG will be met. Weekly openings will initially be set at 24 hours. The duration of weekly fishing periods will be based on comparison of current fishery performance data (CPUE) to historical fishery performance data, as well as Klukshu River weir data.

The U.S. fishery opens during the peak of the Chinook salmon return to the Alsek River. The peak timing appears to be during the first two weeks of June based on tagging data (1998–2004) and the Chinook salmon test fishery data (2005–08, 2011). Chinook salmon tagging studies conducted from 1998 through 2004 indicated that approximately 15–30% of the Chinook salmon passing through Dry Bay are bound for the Klukshu River drainage. Additionally, recent estimates of Chinook salmon run sizes using GSI and Klukshu River weir expansion data have shown that 41-52% (2007, 2011-2013) of Alsek River Chinook salmon returns are of Klukshu River origin. U.S. Alsek River harvests have been less than 1,000 Chinook salmon each year since 1981; 2015 harvest most likely will not be greater than this amount. Although Chinook salmon escapements have been variable in recent years, conservative fisheries management decisions will continue in an attempt to protect Chinook salmon stocks and to meet escapement goals. Chinook salmon returns have been within or above the BEG since 2009, with 2012 being the only exception.

The U.S. conducted Alsek River Chinook salmon test fisheries in 2005–2008, 2011, and 2012 as provided in the current Annex. Because the Chinook salmon escapement goal of 1,100 fish in place at the time of the fisheries was not attained in 2005 through 2008 the test fishery was suspended in 2009 and 2010 in order to facilitate Chinook salmon escapement. Escapements improved markedly in 2009–2014, with 2012 being the only year the BEG for Chinook salmon was not obtained. The U.S. will not conduct a test fishery in 2015.

Coho salmon will be managed by monitoring fishery performance data and comparing it to historical fishery performance data. The 2015 CPUE will be compared to historical CPUE for a given opening; time and area openings will be adjusted, similar to the plan for sockeye salmon. Recent years have seen a decline in effort during the coho salmon season on the Alsek River, and the river was not fished for coho salmon in 2014.

Canada

Canadian fisheries for Alsek River salmon will proceed similarly to regimes in recent years. Next to conservation, the priority in management will be to provide for the basic food, social and ceremonial needs of the CAFN. The basic needs allocations are 200 Chinook and 3,000 sockeye salmon, as documented in the CAFN final land claim agreement. As in recent years, some First Nation's salmon harvest will be allowed to occur at the weir which will also provide opportunities to collect biological data and samples. Restrictions in the First Nation fishery will be considered if the projected Klukshu River weir counts are below 800 Chinook salmon, 1,500 early sockeye and/or 7,500 total sockeye salmon. Decisions to implement restrictions will take into account management actions taken to conserve stocks in both the Canadian recreational fishery and the U.S. Dry Bay fishery.

In the recreational fishery, the following closed/open times will be in effect for 2015: the Dalton Post area of the Tatshenshini River will be open seven days per week; the closed times for Klukshu River, Nesketahin Lake and Village Creek will be from June 15 to November 30; the salmon non-retention periods on the Takhanne and Blanchard rivers will be from July 24 to August 31; and salmon non-retention in Klukshu Lake will be in effect year round. Normal Chinook salmon limits of one per day, two in possession will be in effect subject to conservation concerns. In the event that the run size into the Klukshu River is well above the management target of 1,000 fish (800 fish minimum escapement plus 200 fish CAFN allocation), Canadian managers may liberalize harvest opportunities. If run forecasts are below the minimum weir target, further restrictions in the recreational fishery will be considered. Non-retention of sockeye salmon will be in effect through mid-August to conserve early runs and address domestic allocation priorities. However, if the early sockeye salmon run size into the Klukshu River is projected to be greater than 4,500 sockeye salmon (1,500 early sockeye plus 3,000 sockeye salmon CAFN allocations); Canadian managers may allow sockeye salmon retention in the recreational fishery prior to August 15. After August 15, normal sockeye salmon catch limits of two per day, four in possession will be in effect. However, if the projected total sockeye salmon weir count is less than 10,500 sockeye salmon (7,500 fish minimum escapement plus 3,000 fish CAFN allocation), catch restrictions may be necessary. For coho salmon, additional harvesting opportunities through increased catch limits in the recreational fishery may be provided subject to conservation concerns.

Stock Assessment Program

The escapements of Chinook, sockeye, and coho salmon through the Klukshu River weir and sockeye salmon through the Village Creek (Nesketahin Lake) weir serve as an inseason indicator of stock strength. Adjustments to above border fisheries may be made on the basis of these counts. An estimate of the total Alsek River sockeye salmon run will be made using GSI analysis (funded through the PSC) of U.S. commercial fishery samples and an expansion of the Klukshu River weir count. Subject to funding, a similar estimate may be generated for Alsek River Chinook salmon. A summary of the anticipated field projects in the Alsek River drainage is presented in Appendix Table 5.

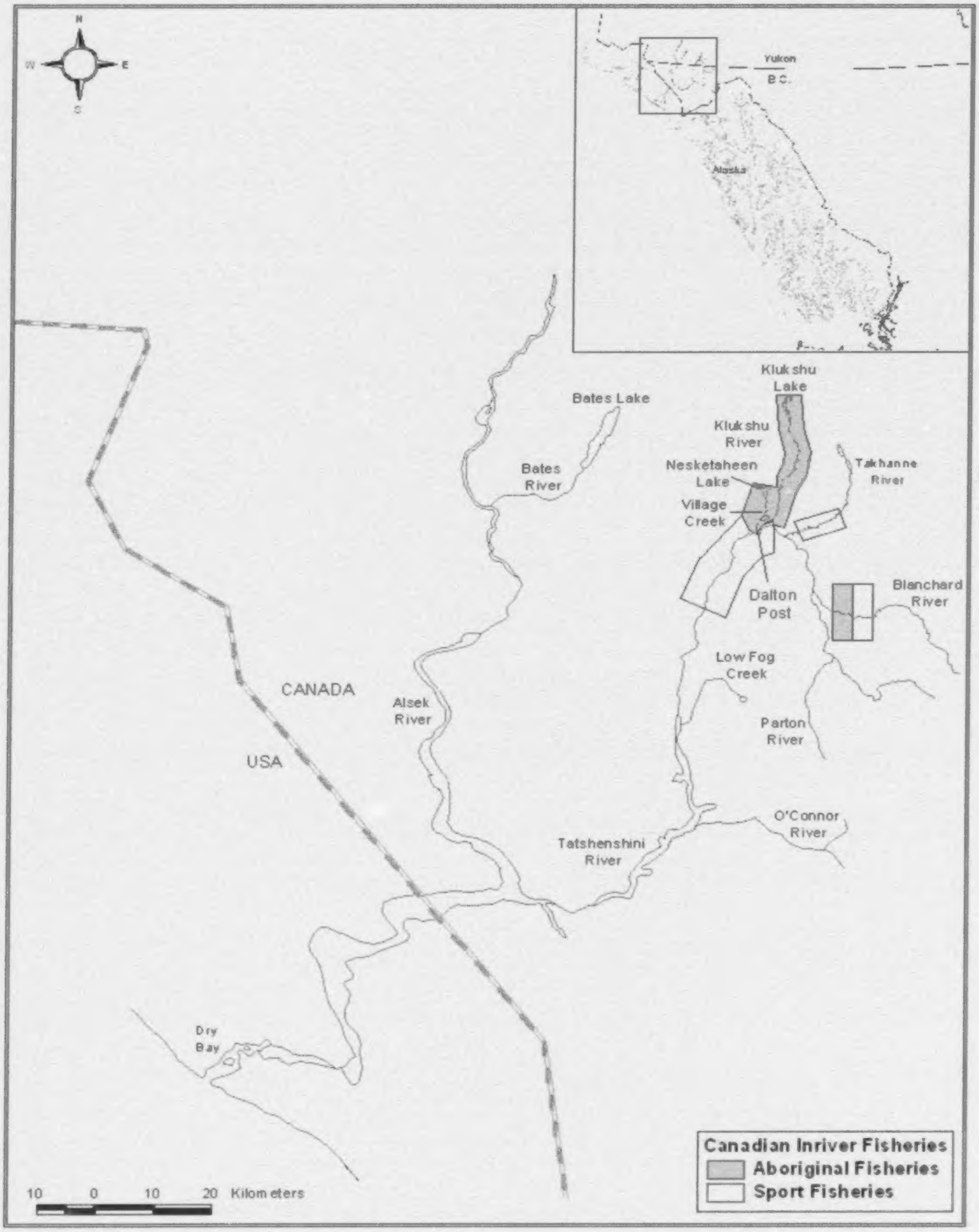
N
W
E
S
Yukon
B.C.
Alaska
Klukshu Lake
Bates Lake
Klukshu River
Bates River
Nesketaheen Lake
Takhanne River
Village Creek
Dalton Post
Blanchard River
Low Fog Creek
CANADA
Alsek River
USA
Parton River
O'Connor River
Tatshenshini River
Dry Bay
Canadian Inriver Fisheries
Aboriginal Fisheries
Sport Fisheries
10
0
10
20
Kilometers

Figure 6. The Alsek River principal Canadian fishing areas.

2015 TRANSBOUNDARY ENHANCEMENT PLANS

Overview

Joint sockeye salmon enhancement projects are conducted on the Stikine and Taku Rivers. Broodstock are collected in Canada at Tahltan Lake in the Stikine River drainage and from Tatsamenie Lake in the Taku River drainage. The eggs from these sockeye salmon are incubated and thermally marked at the Snettisham Hatchery in Alaska. The fry originating from the Tahltan Lake egg take are back-planted into Tahltan and/or Tuya lakes, both of which are located in the Stikine River drainage. The fry originating from the Tatsamenie Lake egg take are returned to their lake of origin. Two other projects of interest on the Taku River include: the investigation of the suitability of Trapper Lake for anadromous salmon production; and feasibility of broodstock capture, egg collection, and back-planting at King Salmon Lake.

As part of the current agreement the parties agreed that:

1. A Stikine Enhancement Production Plan (SEPP) and a Taku Enhancement Production Plan (TEPP) shall be prepared annually by the Committee by February 1. The SEPP and TEPP will detail the planned enhancement activities to be undertaken by the Parties and the expected production from site specific egg takes, access improvements and all other enhancement activities outlined in the annual SEPP and TEPP. The Committee will use these data to prepare an initial enhancement production forecast based on the best available information.

2. The Panel shall review the annual SEPP and TEPP and make recommendations to the Parties concerning them by February 28.

In February 2015 the Panel reviewed and accepted a SEPP and TEPP for activities planned for that year.

The 2015 SEPP and TEPP were approved by the Panel at the February 2015 annual meeting. They are as follows:

2015 SEPP			
Enhancement Project	**Activities**	**Expected Production**	**Technique to document production**
Tahltan Lake	Egg take with target of 6 million. Guideline for last fishing day will be Sept. 25 (Fry to be planted into Tahltan and/or Tuya lake(s))	100,000 Adults (80% green egg – fry, 25% fry-smolt, 8% smolt-adult)	Thermal mark
		Expected Total Production 100,000	

2015 TEPP			
Enhancement Project	**Activities**	**Expected Production**	**Technique to document production**
Tatsamenie Lake	Egg take with target of 30% of available brood stock ~ goal of up to 2.0 million. (Approx. 225K fry for subsequent on-shore / in-lake extended rearing and remainder for lake out-planting)	4,400 adults from out-planting (3.7% green egg – smolt, 6.8% smolt -adult) 1,530 adults from ext. rearing (10% fry - smolt, 6.8% smolt - adult)	Thermal mark
Trapper Lake	Egg take with target of 100,000. Contingent on expectation that barrier modification would be anticipated.	250 adults	Thermal mark
		Expected Total Production 6,180	

The agreement has a provision for possible adjustments in harvest shares if either Party were to intentionally depart from the SEPP; consequently in February 2015 the Panel reviewed the parties' actions relative to the 2013 SEPP and TEPP.

The 2013 TEPP and SEPP as presented to the panel in 2013:

2013 TEPP			
Enhancement Project	**Activities**	**Expected Production**	**Technique to document production**
Tatsamenie Lake	Egg take with target of 30% of available brood stock ~ goal of up to 2.0 million (Approx. 225K fry for subsequent on-shore / in-lake extended rearing and remainder for lake out-planting)	4,400 adults from out-planting (3.7% green egg – smolt, 6.8% smolt -adult) 1,530 adults from ext. rearing (10% fry - smolt, 6.8% smolt - adult)	Thermal mark
Trapper Lake	Egg take with target of up to 250K – based on available brood stock and pending funding and permitting. Further Assessment Activity may be required subject to CEAA review of the barrier removal application.	Up to 800 adults from out-planting (80% green egg - fry, 5% fry - smolt, 8% smolt - adult)	Thermal mark

King Salmon Lake	Egg take with target of up to 250K – (Northern Fund)	Up to 3,200 adults from out-planting (80% green egg - fry, 20% fry - smolt, 8% smolt - adult)	Thermal mark
		Expected Total Production 9,400	

2013 SEPP			
Enhancement Project	**Activities**	**Expected Production**	**Technique to document production**
Tahltan Lake	Egg take with target of 6 million (August adjustment to 5.5 million). Guideline for last fishing day will be Sept. 25 (Fry to be planted into Tahltan and/or Tuya lake(s))	100,000 Adults (80% green egg – fry, 25% fry-smolt, 8% smolt-adult)	Thermal mark
		Expected Total Production 100k	

Summary of activities related to the 2013 TEPP and SEPP; including actions that took place in both calendar year 2013 (egg takes), and calendar year 2014 (fry plants).

Tahltan – 2013 brood year

- target 6 M egg take, fry to be out planted to Tahltan and/or Tuya
    - Actual 4.218 M eggs taken.
- Tahltan/Tuya split (otoliths are thermal marked)
    - Tahltan 2,066,000 fry released
    - Tuya 462,000 fry released

Tatsamenie– 2013 brood year

- target of 30% of available broodstock with goal of up to 2 M egg take, including approximately 225K fry for rearing
    - Actual 1.812 M eggs taken
- plan to repeat experimental onshore/lake rearing
    - Actual fry rearing and releases completed
        - 1,136,000 fry released directly into lake (thermal marked)

- 185,000 reared fry released in August (thermal marked)

Trapper – 2013 brood year

- target up to 250 K eggs for out-planting, further assessment activities
  - Actual, no eggs taken, some assessment activity

King Salmon - 2013 brood year

- target up to 250 K egg take, if funding available to TRTFN
  - Actual no eggs taken (low escapement).

The Panel identified no intentional deviations from the 2013 enhancement plans.

The actual activities for the 2014 TEPP and SEPP will be reviewed by the Panel in 2015. The plans are shown here for information purposes.

2014 TEPP			
Enhancement Project	**Activities**	**Expected Production**	**Technique to document production**
Tatsamenie Lake	Egg take with target of 30% of available brood stock ~ goal of up to 2.0 million (Approx. 225K fry for subsequent on-shore / in-lake extended rearing and remainder for lake out-planting)	4,400 adults from out-planting (3.7% green egg – smolt, 6.8% smolt -adult) 1,530 adults from ext. rearing (10% fry - smolt, 6.8% smolt - adult)	Thermal mark
Trapper Lake	Subject to regulatory review of the barrier removal application. Further assessment activities may be required.	No expected production from 2014 activities (80% green egg - fry, 5% fry - smolt, 8% smolt - adult)	
King Salmon Lake	Egg take with target of up to 250K. Pending Northern Fund approval and broodstock availability.	Up to 3,200 adults from out-planting (80% green egg - fry, 20% fry - smolt, 8% smolt - adult)	Thermal mark
		Expected Total Production 9,130	

2014 SEPP			
Enhancement Project	**Activities**	**Expected Production**	**Technique to document production**
Tahltan Lake	Egg take with target of 6 million. Guideline for last fishing day will be Sept. 25 (Fry to be planted into Tahltan and/or Tuya lake(s))	100,000 Adults (80% green egg – fry, 25% fry-smolt, 8% smolt-adult)	Thermal mark
		Expected Total Production 100,000	

A number of assessment projects are conducted to monitor the recipient lakes (e.g. plankton, water chemistry) and the survival of out planted fry (e.g. smolt enumeration, fry sampling). A summary of the enhancement field and incubation projects is presented in Appendix Table 4.

Fry Plants

Fry plants from the transboundary sockeye egg-takes in 2014 are scheduled to occur in May and June 2015. It is expected the following number of sockeye fry will be out-planted based on estimated fry on hand at Snettisham Hatchery as of March 2014:

Stikine drainage:	Tahltan Lake: It is anticipated that all fry from the 2014 egg take will be transported to Tahltan Lake (2,880,000)
Taku drainage:	Tatsamenie Lake: 0.900 million unfed fry (traditional release) Tatsamenie extended rearing: 0.189 million King Salmon Lake: 0.170 million fry

At Tahltan Lake, the plan is to transport fry on several flights during the period from May 20 to May 30 pending ice free lake conditions. Fry will be held for approximately 24 hours in net pens for observations.

At Tatsamenie Lake, the plan is to transport fry on several flights during the last two weeks of May pending ice free lake conditions. The 2014 extended rearing program will involve holding and feeding fry in a series of on shore-based fish tanks designed to capture flow from an unnamed, salmon free, and presumably pathogen free stream. The fish will be transferred to floating net pens once a threshold weight of 3 grams is achieved. 50,000 fry designated for direct lake release will be placed in a floating net pen in the lake for an in-lake extended rearing trial. The fed fry will be released at a site located in the mid-lake area (pelagic zone) approximately 2 km upstream from the outlet of the lake in August. The fry that are not subject to the grow-out experiment will be released near shore at various sites within the north section of the lake.

Egg Take Goals

Target sockeye egg takes for the fall of 2015 are as follows:

Tahltan Lake

- Up to 6.0 million or a maximum of 30% of available female escapement.

- Final egg take target to be determined in season based on availability of Tuya Lake for out plant and an estimated maximum of 50% enhanced to wild smolt production. In consideration of the desire to minimize disturbance of natural spawning at the adult collection sites, the guideline for the last date that eggs will be collected at Tahltan Lake is September 25.

Tatsamenie Lake

- up to 2.0 million.

- Egg take with target of 30% of available broodstock with a goal of up to two million. A total of 225,000 fry will be used in the Tatsamenie extended rearing project with the remainder going to direct lake out planting.

Little Trapper Lake

- up to 0.10 million (may be increased to 0.25 million with concurrence of TBR Panel chairs)

- Egg take with target of 100,000 (or up to 250,000), contingent on expectation that barrier modification would be anticipated. Providing a fry releases in the lake would ensure that some adults would be returning in future years and those adults would provide the best test of fish passage. If eggs are transported to Snettisham, the hatchery will incubate and transport fry back to Trapper Lake.

King Salmon Lake

- No egg take is planned.

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McPherson, S.A., E.L. Jones III, S.J. Fleischman, and I.M. Boyce. 2010. *Optimal Production of Chinook Salmon from the Taku River Through the 2001 Year Class.* Alaska Department of Fish and Game, Fishery Manuscript Series No. 10-03, Anchorage.

APPENDIX

2015 ANTICIPATED TRANSBOUNDARY FIELD PROJECTS

Proposed projects regarding the Stikine, Taku, and Alsek salmon stocks are summarized in Appendix Tables 1 to 3. Enhancement projects are given in Appendix Table 4. For each project listed, information regarding the dates of operation, primary objectives, and agency roles are described. Contacts are listed at the bottom of each table. The agencies will endeavor to achieve the proposed field projects detailed below. The agencies acknowledge these projects or elements thereof are subject to funding shortfalls from time to time. In the event there is a deviation from the elements described the agency will provide advance notification, where possible, to the other agency.

Appendix Table 1. Proposed Stikine River field projects, 2015.

Project/ Approx.Dates	Function	Agency	Involvement
Stikine Chinook Mark-Recapture			
5/1 - 7/11	• Tag a target of 445 large Stikine River Chinook salmon captured from Kakwan Point drift net site.	ADF&G/ DFO/ TIFN	All aspects except tag recovery.
	• Collect GSI samples (from each fish tagged) separated by week.	ADF&G/ DFO/TIFN	
	• Recover spaghetti tags and CWT's from: Canadian fisheries; Little Tahltan weir ; and from Iskut tributaries (Verrett). Tags may also be recovered from other spawning sites (e.g. Shakes, Craig, Tashoots).	DFO/TIFN	All aspects
	• Recover CWT's from the fish caught at the tagging site, samples to ADF&G lab.	ADF&G/ DFO/TIFN	All aspects
Telemetry			
4/20 – 8/30	• Radio tag 250-300 Chinook salmon at Kakwan Point. Monitor movement through 7 towers throughout the Stikine River. (new 2015)	ADF&G/DFO/ TIFN	All aspects
	• Radio tag 50-100 Sockeye salmon at Kakwan Point and other sites (opportunistic). Monitor movement of Stikine sockeye for movement past slide on Tahltan River. (new 2015)	ADF&G/DFO/ TIFN	All aspects
Tahltan Lake Smolt Estimation			
5/5 - 6/15	• Enumerate Tahltan Lake sockeye smolts.	DFO/TIFN	All aspects
	• Sample up to 800 smolts for age, size, and otoliths.		

Appendix Table 1 (continued)

Project/ Approx. Dates	Function	Agency	Involvement
Upper Stikine Sampling			
6/8 - 8/14	• Sample up to 600 sockeye for matched age, sex, size, egg diameters and otoliths proportionally from the TIFN and commercial fishery at Telegraph Cr.	TIFN/ DFO	Collect samples and data. Data analysis
	• Sample up to 500 Chinook for age, sex, size, CWT's and spaghetti tags. ASL all CWT'ed Chinook.	TIFN/ DFO	Sampling Data analysis
Little Tahltan Chinook Enumeration			
6/20 - 8/11	• Enumerate Little Tahltan Chinook salmon from a weir located at the mouth of the river.	DFO/TIFN	All aspects
	• Enumerate and record tags observed.	DFO/TIFN	All aspects
	• Sample target of up to 2,000 fish for marks (CWT, spaghetti, secondary marks), sex and size; sample 650 of these fish for age. Attempt to sample all clipped fish for CWT recoveries. CWT samples to go to DFO, unless other arrangements are made. ASL all CWT-ed Chinook.	DFO/TIFN	All aspects
Test Fishery in Lower Stikine			
5/3 – 9/4	• Conduct test fisheries for Chinook (when no AC) and sockeye to assess run size and run timing.	DFO/TIFN	All aspects
	• Sample all Chinook for tags/tag loss, CWTs and for age-sex- size. CWT samples to go to DFO lab in Vancouver, unless other arrangements.	DFO	All aspects
	• Sample up to 400 sockeye per week for otoliths matched with scales and, for females, with egg diameters. Transfer otolith samples to ADF&G weekly for inseason processing. For inseason analysis, a combined sample of 60-200 otoliths per week from the lower river test fishery will be analyzed for stock ID.	DFO/TIFN, ADF&G	All aspects, Otolith analysis
	• Collect up to 300 weekly GSI samples from Chinook and sockeye.	DFO/TIFN	All aspects
	• Sample all coho (caught in sockeye test fishery) for CWTs and age-sex-size; CWT samples to go to DFO lab in Vancouver, unless other arrangements are made.	DFO/TIFN	All aspects

Appendix Table 1 (continued)

Project/ Approx. Dates	Function	Agency	Involvement
Commercial Inriver Fishery Stock ID Sampling			
5/3 – 6/20	• Commercial catch sampling for directed Chinook fishery to include up to 200/week for age-sex-size and secondary marks (opercular punch), plus observe 50% of the catch for adipose clips. Collect heads from all clipped fish observed. CWT samples to go to DFO lab in Vancouver, unless other arrangements are made. Collect up to 300 GSI samples/week. U.S. port samplers will sample a portion of the lower river harvest delivered to Wrangell-Petersburg.	DFO/TIFN/ ADF&G	All aspects
6/21 - 8/22	• Commercial catch sampling for sockeye to include 200/week for age-sex-size, plus up to 200 otolith samples including 150 matched egg-diameter/otolith samples. Otolith deliveries to be arranged with ADF&G and will require delivery by boat to Wrangell. Analyze 60 to 200 sockeye otolith samples per week. Collect sockeye GSI samples as part of NF project (300 per week).	DFO/TIFN, ADF&G	All aspects, Otolith analysis
	• Incidental commercial catch sampling for Chinook during targeted sockeye fishery to include up to 200/week for age-sex-size and secondary marks (opercular punch), plus observe >50% of the catch for adipose clips. Collect heads and ASL information from all clipped fish observed. CWT samples to go to DFO lab in Vancouver, unless other arrangements are made. Collect 300 GSI samples/week.	DFO	All aspects
8/23 - 9/14	• Sample all adipose clipped coho for CWT's and ASL; annual commercial fishery sampling target is 500 for age-sex-size. CWT samples to go to DFO lab in Vancouver, unless other arrangements are made.	DFO/TIFN	All aspects
District 106 &108 Stock ID Sampling			
5/25 – 7/18	• Sample a minimum of 20% of Chinook catches in commercial fisheries per district for CWTs; sample Chinook for scales (for aging), sex, and size (scale sampling goals are 600 for the season for D108). Collect GSI samples from Chinook in D108 commercial fisheries. Sampling target is 120/week if directed fishery occurs. Goal for non-directed incidental catch is 80/week.	ADF&G	All aspects

Appendix Table 1 (continued)

Project/ Approx. Dates	Function	Agency	Involvement
District 106 &108 Stock ID Sampling (continued)			
6/15 – 8/8	• Collect 300 sockeye samples/week for ASL, GSI, and otoliths matched samples in drift gillnet fisheries in each of Sub-districts 106-41, 106-30 and 520 sockeye samples/week in District108.	ADF&G	All aspects
6/15 – 10/17	• Sample a minimum 20% of coho catches in the drift gillnet fisheries in each district for CWT and sample 600 coho for ASL (sampling goals are 600 per district for the season).	ADF&G	All aspects
Chinook Surveys			
7/25 - 8/19	• Survey Chinook salmon in Andrew Creek and sample a minimum 200 Chinook for age-sex-size, spaghetti- and coded-wire tags.	ADF&G	All aspects
8/3 - 8/7	• Aerial survey Chinook salmon spawning in Christina Creek and Verrett, Tahltan, Little Tahltan rivers.	DFO	All aspects
Tahltan Lake Salmon Enumeration			
7/5 - 9/15	• Enumerate Tahltan Lake sockeye entering the lake at weir.	DFO/TIFN	All aspects
	• Live-sample a minimum of 600 sockeye for age, sex and size and an additional 125 fish per day for sex.	DFO/TIFN	All aspects
	• Endeavour to conduct terminal fishery at Tahltan Lake if escapement targets are likely to be exceeded.	DFO/TIFN	All aspects
	• If escapement goal is achieved, sample up to 400 sockeye for both otoliths and egg diameters (400 additional fish will be sampled from the brood stock take). If the return is weak, fish will not be sacrificed for otoliths. Attempts will be made to obtain samples from broodstock or carcasses.	DFO/TIFN	All aspects
	• Sample available post-spawn Chinook in Johnny Tashoots Creek for age, size, sex and spaghetti tags and CWT's. Collect GSI baseline samples to top up inventory.	DFO/TIFN	All aspects

Appendix Table 1 (continued)

Project/ Approx. Dates	Function	Agency	Involvement
Tuya Terminal Harvest			
7/20 – 7/30	• Conduct an ESSR fishery in the mainstem Stikine between the mouths of the Tuya and Tahltan rivers to harvest Tuya bound sockeye salmon. Sample up to 500 sockeye for otoliths and egg diameters. Release all live Chinook.	TIFN	All aspects
Chinook and Coho Coded Wire Tagging			
4/20 - 5/30	• Targets are 40k Chinook smolts and 10k coho smolts.	ADFG/ DFO/TIFN	All aspects
	• Sample every 100th CN and 115th CO smolt for length (FL)	ADFG/ DFO/TIFN	All aspects
Sport Fishery Sampling			
6/05 - 8/06	• Survey anglers in the Tahltan River (and sample FSC fish at same sites).	TIFN/DFO	All aspects
4/20 – 7/11	• Conduct catch sampling program for Petersburg and Wrangell sport fisheries and sample for CWTs, GSI, and age-sex-length. Target is to sample 30% of catch for CWTs. Conduct post season surveys (State-wide survey) to obtain harvest data.	ADF&G	All aspects
Chinook Surveys			
7/25 - 8/19	• Chinook salmon spawning foot/aerial surveys in Andrew Creek.	ADF&G	All aspects
8/1 - 8/05	• Chinook salmon spawning aerial surveys in Christina Creek, Verrett, Little Tahltan, Tahltan rivers.	DFO	All aspects
Coho and Sockeye Aerial Surveys			
9/05, 11/04	• Enumerate Stikine R. sockeye and coho salmon spawning in index areas (and Tahltan Lake) within the Canadian portion of the river (subject to inseason funding).	TIFN/DFO	All aspects

Contacts: Stikine Projects

Pete Etherton/ Ian Boyce	(DFO)	All DFO projects.
Steve Smith	(DFO)	All DFO projects.
Cheri Frocklage/Heather Hawkins	(TIFN)	Inriver sampling projects.
Phil Richards/Troy Jaecks	(ADF&G)	Chinook tagging and surveys; Andrew Creek sampling.
Julie Bednarski/ Jim Andel	(ADF&G)	106&108 samples, stock assessment.

Canadian staff associated with Stikine projects that may be crossing the Canadian/US border:

Peter Etherton, Cheri Frocklage, Andy Carlick, Sean Stark, Bill Waugh, Kyle Inkster, Kerry Carlick, Mel Besharah, Jared Dennis, Drew Inkster, Keenan Vance, Bonnie Huebschwerlen, Ian Boyce, others

US staff associated with Stikine projects that may be crossing the Canadian/US border:

Jim Andel, Troy Thynes, Kevin Clark, Sara Gilk-Baumer, Serena Rogers Olive, Julie Bednarski, Tom Kowalske, Phil Richards, Stephen Todd, Ed Jones, Troy Jaecks, Chris Ford, Jeff Williams, Patrick Fowler, others

Appendix Table 2. Proposed Taku River field projects, 2015.

Project/Dates	Function	Agency	Involvement
Canyon Island Marking Program			
Mid-April	• Set up camp, build and place fish wheels.	ADF&G/ TRTFN/ DFO	All aspects
4/20 – 10/3	• Fish wheel/ gillnet operation.	ADF&G	3 staff
	• Mark all Chinook, sockeye, and coho salmon with spaghetti tags. Tagging goals for each species are: – 1,500 large, 500 medium and 250 small Chinook o 25-30% precision goal; o Drift gillnet downstream of Canyon Island (5 hrs/day) o Drift gillnet upstream of Canyon Island when assessment fishery not operating. (5hrs/day)4,000-5,000 sockeye – precision goals 50% for weekly estimates, 10% for post season; – 2,500 coho – try for 25% precision, (95% rp).	TRTFN DFO	1 staff 2 staff
	• Sample for age-sex-length information: – 260 sockeye/week throughout sockeye run, – 600 coho for the entire season, – all Chinook.	ADF&G/ TRTFN/ DFO	
	• Sacrifice all adipose-clipped Chinook and coho caught for CWTs. CWT samples to go to ADF&G lab.	ADF&G/ TRTFN/ DFO	
Chinook Telemetry			
	• Radio tag up to 300 Chinook salmon at tagging sites at or near Canyon Island	ADF&G/ DFO	All aspects
	• 7 Towers at various sites to account for fish behavior and inform M/R estimates.		
	• 2 Flights to determine fish positions within the drainage.		
Smolt Tagging – CWT lower Taku			
4/6 - 6/12	• CWT-ing goals are 40,000 Chinook and 30,000 coho smolt. • Sample every 100th CN and 115th CO smolt for length (FL) and weight • Sample 300 CO smolt for age (12-15 scales) • Experiment with additional beach seining/other methods.	ADF&G/ DFO	All aspects ADF&G 5 staff DFO 2 staff
Canadian Aboriginal Fishery Sampling			
5/1 - 10/11	• Collect and record FN catch information.	TRTFN	All aspects

Appendix Table 2 (continued)

Project/Dates	Function	Agency	Involvement
Nahlin/Tseta Sampling			
8/3 - 8/7	• Sample Chinook in Nahlin River and Tseta Creek for age-sex-length, spaghetti tags/tag loss, and CWT. CWT samples to go to ADF&G lab.	ADFG/ DFO/FN	All aspects
Dudidontu Sampling			
8/8 - 8/15	• Sample Chinook in Dudidontu River for age-sex-length, CWTs, and spaghetti tags/tag loss. CWT samples to go to DFO or ADF&G lab.	ADFG/ DFO	All aspects
Canadian Commercial Fishery Sampling			
6/21 – 10/10	• Collect and record commercial catch information; forward to ADF&G Juneau via Whitehorse.	DFO	All aspects
	• Sample Chinook, sockeye and coho salmon for age-sex-length and secondary marks, 200 per week for sockeye; 520 per season for coho; 50 -150 scale samples per week for Chinook. Examine a minimum of 40% of Chinook and 20% of coho catch for adipose clips and secondary marks.	DFO	All aspects
	• Sample 120 large Chinook and 125 sockeye per week for GSI samples.	DFO	All aspects
	• Collect 192 sockeye otolith samples per week to estimate contribution of enhanced fish; send otolith samples to ADF&G for processing via Canyon Island.	DFO	All aspects
	• Inseason sockeye otolith analysis.	ADF&G	All aspects
	• Collect and record all spaghetti tags caught in commercial fisheries, pay fishers for tag recoveries.	DFO	All aspects
	• Collect salmon roe as required for CWT program.	DFO	All aspects
Canadian Chinook Assessment Fishery			
5/3 - 6/20	• Capture and examine a total of up to 1,400 large (>659mm MEF) Chinook for spaghetti tags and adipose-clips as per weekly targets.	DFO	All aspects
	• Sample 50% fish for age; 100% for sex-size, CWTs, spaghetti tags/tag loss. Scales will be collected from all ad-clipped fish. CWT samples to go to ADF&G Juneau.	DFO	All aspects
Canadian Coho Assessment Fishery			
9/13 - 10/10	• Capture and inspect up to 500 coho per week for spaghetti- and coded-wire tags. Sample up to 520 coho for the season for age-sex-length and tag scars. CWT samples to go to ADF&G Juneau.	DFO	All aspects
District 111 Fishery Sampling			
6/21 – 10/17	• Collect and record commercial catch information; forward to DFO Whitehorse via Juneau.	ADF&G	All aspects

Appendix Table 2. (continued)

Project/Dates	Function	Agency	Involvement
District 111 Fishery Sampling – cont'd			
	• Sample a minimum of 20% of Chinook and coho catches for CWTs; all species except pinks for age-sex-length, as well as Chinook for maturity (600 per season for Chinook, chum, and coho).	ADF&G	All aspects
	• Sample commercial Chinook catch for GSI samples; target is 120/week if directed fishery occurs. Goal for non-directed incidental catch is 80/week.	ADF&G	All aspects
	• Collect and record all spaghetti tags caught in marine fisheries, pay fishers for tag recoveries.	ADF&G	All aspects
	• Collect 320 matched genetics/scale/otolith samples per week from sockeye with subdistrict specific goals.	ADF&G	All aspects
Kuthai Sockeye Sampling			
7/2 - 8/31	• Operate the adult sockeye salmon weir at Kuthai Lake; enumerate and sample for age-sex-length-spaghetti tag loss (750 samples) and recover spaghetti tags.	TRTFN	All aspects
mid-Sept.	• Conduct an aerial survey in Kuthai Lake to enumerate sockeye and compare with weir count.	TRTFN	All aspects
5/31 – 7/11	• Collect a total of 800 GSI samples (matched with ASL data) from sockeye at Canyon Island for stat week 23-28 for mixed stock analysis. Analyzed at DFO lab.	ADF&G DFO/TRTFN	Collection Analysis
	• Telemetry: apply 50 radio tags to sockeye salmon at Canyon Island (matched with GSI as part of 800 above) to determine success of migration for Kuthai sockeye salmon. Survey concurrent with Chinook Telemetry.	ADF&G	All aspects
King Salmon Weir			
7/02 – 8/31	• Operate the adult sockeye salmon weir at King Salmon Lake; enumerate and sample for age-sex-length-spaghetti tag loss (750 samples), recover spaghetti tags.	TRTFN	All aspects
	• Conduct an aerial survey in King Salmon Lake to enumerate sockeye and compare with weir count.		

Appendix Table 2. (continued)

Project/Dates	Function	Agency	Involvement
Aerial Chinook surveys			
7/21 - 8/25	• Aerial surveys of spawning Chinook salmon in the Nakina, Nahlin, Dudidontu, Tatsatua, Kowatua, and Tseta rivers.	ADF&G	All aspects
Sport Fishery Sampling (Marine)			
4/20 – 7/11	• Conduct catch sampling program in the Juneau sport fishery and sample for CWTs, age-sex-length, and GSI. Target is to sample 20% of catch for CWTs. Includes derby sampling. Conduct post season surveys (State-wide survey) to obtain harvest data.	ADF&G	All aspects
Nakina Chinook Sonar (Pilot) and Creel Survey			
6/01 – 7/31	• Operate a DIDSON sonar on the Nakina R to enumerate large Chinook .	TRTFN/ DFO	All aspects
	• Collect and analyze 500 GSI samples from lower river assessment/commercial fishery.	DFO	All aspects
6/22 – 7/20	• Creel survey to increase examinations of Chinook salmon for marks and recreation harvest estimate.	TRTFN	All aspects
Little Trapper Weir			
7/20 – 8/31	• Enumerate adult sockeye through weir and sample for age-sex-length-spaghetti tag loss (750 samples), recover spaghetti tags.	DFO	All aspects
Tatsamenie Sockeye Weir			
8/3 - 9/30	• Enumerate adult sockeye through weir and sample for age-sex-length-spaghetti tag loss (750 samples), recover spaghetti tags. 400 broodstock will be sampled for sex and length and matched otoliths.	DFO	All aspects
Tatsamenie Area Chinook sampling			
9/1 - 10/1	• at upper Tatsamenie, sample Chinook for age-sex-length, spaghetti tags/tag loss, and CWTs. CWT samples to go to DFO lab.	DFO	All aspects
8/20 - 9/16	• operate the carcass weir at Lower Tatsamenie and sample all Chinook recovered for age-sex-length, spaghetti tags/tag loss, and CWTs. Target sample size is 600-900 all sizes.	DFO	All aspects
Kowatua Sampling			
9/1 - 10/1	• Sample Chinook for age-sex-length, spaghetti tags/tag loss, and CWTs.	DFO	All aspects

Contacts:	**Taku Projects**		
	Ed Jones	(ADF&G)	Smolt tagging, adult Chinook escapement sampling.
	Jim Andel	(ADF&G)	Canyon Island adult tagging.
	Julie Bednarski	(ADF&G)	All ADF&G Com Fish Research Programs.
	Phil Richards	(ADF&G)	Chinook surveys.
	Jeff Williams	(ADF&G)	Chinook surveys.
	Sara Gilk-Baumer	(ADF&G)	Genetics.
	Ian Boyce	(DFO)	All DFO Taku programs.
	Bill Waugh	(DFO)	All DFO Taku programs.
	Steve Smith	(DFO)	All DFO Taku programs.
	Cheri Frocklage	(TIFN)	All TIFN programs.
	Jason Williams	(TRTFN)	All TRTFN programs.
	Richard Erhardt	(TRTFN)	All TRTFN programs.

Canadian staff associated with Taku projects that may be crossing the Canadian/US border:

Ian Boyce, Bill Waugh, Kirstie Falkevitch, Manon Fontaine, Mike Lake, Mark McFarland, Richard Erhardt, Mark Connor, Shawn McFarland, Lino Battaja, Keith Carlick, Trevor Carlick, Sabrina Williams, Brian Mercer, Steve Smith, Cheri Frocklage, Jason Williams, Bonnie Huebschwerlen,others.

US staff associated with Taku projects that may be crossing the Canadian/US border:

Jim Andel, Julie Bednarski, Ed Jones, Sara Gilk-Baumer, Kent Crabtree, Dave Harris, Scott Forbes, Phil Richards, Mike LaFollette, David Dreyer, Ron Josephson, Brian Frenette, Jeff Williams, Norm Miller, Travis Orient, Jacob Metzger, Andy Piston, Nathan Frost, Lee Close, Mike Enders, Stephen Todd, Troy Jaecks, Lowell Fair, Serena Rogers Olive, Todd Johnson, others.

Appendix Table 3. Proposed Alsek River field projects, 2015.

Project/Dates	Function	Agency	Involvement
Klukshu River Sampling			
6/8 - 10/10	• Enumerate Chinook, sockeye and coho salmon at weir.	DFO/CAFN	All aspects
	• Estimate sport and aboriginal fishery catches.	DFO/CAFN	All aspects
	• Opportunistically collect age-sex-length information from sockeye caught by First Nations (600 scale samples per species) except Chinook, see below.	DFO/CAFN	All aspects
	• Opportunistically sample 200 Chinook in each of sport and aboriginal harvest for scales, sex, length (MEF), and CWTs.	DFO/CAFN	All aspects
	• Sample 600 Chinook, sockeye, and, coho at weir for scales, sex, length.	DFO/CAFN	All aspects
Village Creek sockeye enumeration			
6/15 - 9/30	• Enumerate salmon (sockeye focus) using a video counting system at Village Creek.	DFO/CAFN	All aspects
Lower Alsek Sampling			
6/7 - 9/15	• Collect age-sex-length (MEF), GSI data (sockeye-800, Chinook-600, coho-500 no GSI) from Dry Bay commercial fishery.	ADF&G	All aspects
	• Analyze GSI samples to derive drainage wide escapement estimate for Chinook and sockeye based on proportion Klukshu expansion of Dry Bay harvest.	DFO	

Contact: Alsek Projects

Bonnie Huebschwerlen	(DFO)	All DFO projects
Ian Boyce	(DFO)	All DFO projects
Bill Waugh	(DFO)	All DFO projects
Steve Smith	(DFO)	All DFO projects
Gordie Woods	(ADF&G)	Dry Bay fishery
Linaya Workman	(CAFN)	CAFN projects

Canadian staff associated with Alsek projects that may be crossing the Canadian/US border:
Mark McFarland, Bonnie Huebschwerlen, Ian Boyce, Bill Waugh, Peter Etherton, Shawn McFarland, Linaya Workman, others

US staff associated with Alsek projects that may be crossing the Canadian/US border:
Gordie Woods, Julie Bednarski, Richard Chapell, Marvin Weinrick, others

Appendix Table 4. Proposed 2015 Enhancement Projects for Transboundary Stikine and Taku Rivers.

Project	Function	Agency	Involvement
All Projects, Egg Collection and Transport, Fry Releases			
2/1 – 5/15	• Acquire Canadian permitting regarding egg and fry transport	DFO	All aspects
Tahltan/Tuya Enhancement Project			
5/5 - 6/20	• Enumeration and sampling of smolts from Tahltan Lake (Stikine River, in Canada) and collection of otolith samples to determine planted contribution.	DFO	All aspects
5/15 - 6/30	• Backplant sockeye fry from Snettisham Hatchery into Tahltan Lake.	DIPAC/ ADF&G	All aspects
6/1 - 8/30	• Limnological samples from Tahltan Lake monthly.	DFO	All Aspects
8/24 - 10/05	• Collect up to 6.0 million sockeye eggs from Tahltan Lake and transport to Snettisham Hatchery in Alaska. (Dates are subject to onsite conditions).	DFO	Egg-take and transport
8/24 - 10/05	• Sample 200 male and 200 female adult sockeye from Tahltan Lake broodstock for otolith samples.	DFO	All aspects
Stikine Enhancement Feasibility Study			
7/1 – 9/30	• Field activities investigating enhancement opportunities in Stikine. Northern Fund.	TFN	All aspects
Tuya Straying Assessment			
9/1 – 9/30	• Survey Shakes Creek spawning area for incidence and success of sockeye spawning	DFO–support from TFN	All aspects

Appendix Table 4. (continued)

Project	Function	Agency	Involvement
Tatsamenie Lake Enhancement Project			
5/10 – 8/30	• Sample smolt out-migration from Tatsamenie (Taku River, in Canada) and conduct mark-recapture program on smolt from Tatsamenie Lake, submit samples to DFO for otolith analysis.	DFO/Northern – funding	All aspects
5/24 - 5/30	• Back-plant sockeye fry from Snettisham Hatchery into Tatsamenie Lake.	DFO/DIPAC/ ADF&G	All aspects
6/1 – 8/15	• Onshore extended rearing - net pen rearing of ~ 225,000 sockeye fry. Expected growth from 0.35 g to 4.0 grams.	DFO/DIPAC/ Mercer and Assoc.	All Aspects
8/15 - 10/30	• Collect up to 30% available broodstock (up to 2.0 million sockeye eggs) from Tatsamenie Lake and transport to Snettisham Hatchery in Alaska.	DFO	Egg-take and transport
9/25 - 10/05	• Sample 200 male and 200 female adult sockeye from Tatsamenie Lake broodstock for otolith samples.	DFO	All aspects
Trapper Lake Enhancement			
6/1 - 9/30	• Egg Take of 100K (up to 250K) for planting into Trapper Lake.	DFO/Northern Funding	All aspects
Salmon Egg Incubation			
9/1 - 6/15	• Incubation and thermal marking of juvenile sockeye (eggs & alevins) collected from transboundary lakes at the Snettisham Incubation Facility in Alaska.	DIPAC/ ADF&G	All aspects

Canadian staff that may be crossing the Canadian/US border:

Flight crew

US staff that may be crossing the Canadian/US border:

Snettisham Hatchery Staff, Eric Prestegard, Garold Pryor, Ron Josephson flight crew from Ward Air airline

Appendix Table 5. Proposed Genetic stock ID field projects, 2015.
(Baseline collections are opportunistic - no identified funding).

Drainage	Location	Priority	Agency
Adjacent Stikine Chinook baseline samples			
	Farragut	M	ADF&G/NMFS
	Bradfield	H	ADF&G/NMFS
	Harding	M	ADF&G/NMFS
Stikine Chinook baseline samples			
	Chutine	M	DFO
	Tuya	M	DFO
	Beatty Creek	M	DFO/ADF&G
	Bear Creek	H	DFO
	Johnny Tashoots Creek	H	DFO
	Craig	M	DFO
	Katete	L	DFO
	Stikine (above Chutine)	L	DFO
	Stikine (below Chutine)	M	DFO
	N. Arm (US section)	L	ADF&G
	Goat (US section)	L	ADF&G
	Alpine/Clear (US section)	L	ADF&G
	Kikahe (US section)	L	ADF&G
Stikine Chinook fishery samples			
	Lower Stikine commercial fishery – target is up to 300 per week		DFO
	Kakwan Pt tagging site – collect tissues from each fish		ADF&G/DFO
	D-108 GN – 120/wk (directed); 80/wk (non-directed)		ADF&G
	D-108 sport - Petersburg target sample is 450; Wrangell is 200 spread over season.		ADF&G
	D-108 spr troll - Petersburg target sample is 100; Wrangell is 300 spread over season.		ADF&G
Stikine sockeye baseline samples			
	Tahltan Lake	M	DFO
	Stikine mainstem (look alike)	L	DFO
	Iskut (look alike)	L	DFO
	Christina Lake (lake spawners)	H	DFO
	Christina Lake (inlet spawners)	M	DFO
	Katete	M	DFO

Appendix Table 5 (continued)

Project/Dates	Function		Agency
Stikine sockeye fishery samples			
	Lower Stikine commercial fishery – target is up to 300 per week		DFO
	Lower Stikine test fishery – target is up to 300 per week		DFO
	Tuya test fishery [Upper Stikine River] – sample goal is up to 300		DFO
	D-108 – sample goal is 520/wk combined		ADF&G
	D-106 – sample goal is 300/wk/each for 106-30 and 106-41		ADF&G
Taku Chinook baseline samples			
	Yeth	H	DFO
	King Salmon	H	DFO
	Sloko	M	DFO
	mainstem Taku	L	DFO
	Sutlahine	L	DFO
	Inklin	L	DFO
Taku Chinook fishery samples			
	Taku assessment fishery – sample target is 120/wk		DFO
	Taku commercial fishery – target is 120/wk		DFO
	D-111 – sample goal is 120/wk (directed) or 80/wk (non-directed)		ADF&G
	Juneau area sport – sample target is 600		ADF&G
Taku sockeye baseline samples			
	Taku Mainstem (look alike)	L	DFO/ADF&G
	Nakina	M	TRT
	Johnson (US section)	L	ADF&G
	Samotua	L	DFO
	Kuthai	H	DFO
	Little Trapper	H	DFO
Taku sockeye fishery samples			
	Taku Inriver commercial fishery – target is 125 per week		DFO
	D-111 – sample target is up to 800 weekly		ADF&G
	Kuthai/early mainstem (Canyon Island) – stat wks 23-28 – target 200/wk (up to 800)		ADF&G/DFO
Alsek Chinook baseline samples			
	Goat Creek	H	DFO
	Lofog Creek	L	DFO
	mainstem Tatshenshini (middle, i.e. Kudwat)	H	DFO
	mainstem Tatshenshini (lower)	H	DFO
	mainstem Tatshenshini (upper)	H	DFO
	mainstem Alsek	L	DFO
	Tweedsmuir		DFO

Appendix Table 5. (continued)

Project/Dates	Function		Agency
Alsek sockeye baseline samples			
	Blanchard Lake	H	DFO
	Takhanne River	H	DFO
	Goat Creek	M	DFO
	Mainstem Tatshenshini (lower)	H	DFO
	Tats Lake	M	DFO
	Detour Creek	L	DFO
	Stinky Creek	M	DFO
	Tweedsmuir	M	DFO
	Alsek mainstem	L	ADF&G
	Border Slough	M	DFO
	Tanis (US section)	L	ADF&G
	Basin (US section)	H	ADF&G
Adjacent Alsek baseline samples			
	Ahrnklin R.	L	ADF&G
	Akwe	L	ADF&G
	Italio	L	ADF&G
	Lost	M	ADF&G
Alsek fishery samples			
	Chinook test fishery – all fish		ADF&G
	Dry Bay commercial – Chinook and sockeye – target is 800 sockeye and 600 Chinook spread over run.		ADF&G

GSI sampling protocol:

- the target sample size is 200 adult samples per population unless otherwise noted.
- the preferred tissue to sample is the axillary appendage. For baseline samples, each fish will be sampled for two appendages; one to be sent to the DFO lab and the other to the ADF&G lab. For fishery samples, each fish will be sampled for one axillary appendage which will be shared if requested.
- If opercular punches are taken, two punches will be taken from each fish, again one for each of the respective labs. To eliminate problems associated with potential delamination of punches in composite samples i.e. where punches from one population and/or location are all stored in one vial as has been the practice, opercular punches will now be stored in individual labeled vials.
- Axillary appendages and opercular punches will be stored in ethanol (full strength) and each sample appropriately labeled (date, location (**GPS**), species, number of samples, fixative and volume thereof, collector, contact name, agency, phone number).
- although it is recognized that there are potential efficiencies in terms of effort, time, storage, shipping and archiving associated with using scale samples for GSI, this should not be a tissue of choice when obtaining fishery or other samples for GSI (e.g. out of a tote) but may be used as last resort.

Appendix Table 6. Genetic baseline information available for transboundary Chinook salmon stocks.
Information from 2007 (number of samples held by the U.S. and Canada and baseline gaps identified) is from Report TCTR(07)-02, "Summary of the Transboundary Genetic Stock ID Workshop: January 18-19, 2007".

	Sample Goal	No. samples 2007		2007 Gap	No. samples 2015		Collection Years		2015 Gap
Location/Pop		US	Can.		US	Can.	US	Canada	
Stikine Adjacent									
Unuk									
Clear	200	194		6	197		89,03,04		3
Cripple	200	153		47	153		88,03		47
Gene's Lake	200	152		48	125		89,03,04		75
Boundary	200	24		176	23		03		177
Kerr	200	154		46	156		03,04		44
Lake Creek	200	27		173	30		03		170
Eulachon	200	0		200	0				200
Bradfield	400	39		161	247		12		153
Farragut	400	186		14	190		93,94,13		210
Harding	400	45		155	213		89,12		187
Aaron	200	0		200	0				200
Eagle	200	0		200	0				200
Stikine									
North Arm Ck (US)	200	18		182	18		89		182
Alpine/Clear (US)	200			200	121		07,09,10,13,14		79
Andrews Ck (US)	200	348	25		255	144	89,04	00	0
Goat Ck (US)	200			200	57		07,09,12-14		143
Kikahe (US)	200				17		09		183
Katete	200			200					200
Verrett	200		472		277	854	07,10	00,02,03,07,09,10	0
Craig	200		113	87		114		01	86
Christina (or Christine?)	200		205			240		00-02	0
Bear Ck	200			200		5		11	195
Stikine (below Chutine)	200			200					200
Chutine	200			200		7		02	193

Location/Pop	Sample Goal	No. samples 2007 US	No. samples 2007 Can.	2007 Gap	No. samples 2015 US	No. samples 2015 Can.	Collection Years US	Collection Years Canada	2015 Gap
Stikine (above Chutine)	200			200					200
Shakes	200		169	31	84	225	93,07	00-03,07	0
Tahltan R	200			200	360	212	89,90,08,09,11	08,09,11	0
Little Tahltan R	400	409	130		994	745	91,05,08,10,12-14	99,01,04,10	0
Johnny Tashoots	200		26	174	76	99	08,09	01,04,05,08,09	101
Beatty	200			200					200
Tuya	200			200	48	32	07-09,11-13	08,09,11,13	152
Taku Adjacent									
Chilkat - Big Boulder Ck	200	175		25	180		91,92,95,04		20
Whiting	200			200					200
Taku									
mainstem Taku	200			200					200
King Salmon	200			200	17		07,08,10		183
Inklin	200			200					
Sutlahine	200			200	4	3	10	10	196
Yeth	200			200	56	53	08-10	08-10	144
Kowatua/Little Trapper	200	321	78		190	379	89,90	89,90,99,05	0
Tatsatua/Tatsamenie	200	437	299		887	736	89-90,03-05,07	99,05-07	0
Hackett	200			200	189	233	07-08	06-08	0
Dudidontu	200	189		11	358	352	90,05,06,08	02,04-06,08	0
Tseta	200	132		68	374	327	89,03,08,10	89,08,10	0
Nahlin	200	210			297	303	89,90,04,05	99,04,06,07	0
Sloko	200			200					200
Nakina	400	198	76		214	480	89,90,07	01,04-07	0
Alsek Adjacent									
Situk	400	174	132	26	513		88,90-		0

Location/Pop	Sample Goal	No. samples 2007		2007 Gap	No. samples 2015		Collection Years		2015 Gap
		US	Can.		US	Can.	US	Canada	
							92,11,13		
Alsek									
mainstem Alsek	200			200					200
Tatshenshini						24		01	
Mainstem (lower)	200			200					200
Mainstem (upper)	200			200					200
Low Fog	200			200	2		10		198
Mainstem (middle)/Kudwat	200			200	72	70	08,10,11	08,10,11	128
Klukshu	200	250			228	433	89,90,91	87,00,01	0
Village Creek	200				16		12,13		184
Takhanne	200			12	35	218	08,10,11	00-03,08,10,11	0
Blanchard	200					381		00,01,02,03	0
Stanley Ck	200				34		10-13		166
Goat Ck	200			200	164	174	07-13	07-13	36
Tweedsmuir	200				6	6	09,11	09,11	194

Appendix Table 7. Genetic baseline information available for transboundary sockeye salmon stocks. Information from 2007 (number of samples held by the U.S. and Canada and baseline gaps identified) is from Report TCTR(07)-02, "Summary of the Transboundary Genetic Stock ID Workshop: January 18-19, 2007".

Location/Pop	Sample Goal	No. samples 2007		2007 Gap	No. samples 2015		Collection Years		2015 Gap
		US	Can.		US	Can.	US	Canada	
Stikine Adjacent									
Hugh Smith - Cobb	200	200		100	450		03,12,13		0
Karta River	200	99		101	139		92, 08		61
Mahoney Creek	200	64		136	198		03,07		2
Salmon Bay Lake	200	139		61	213		92,04,07		0
Virginia	200			200	295		07		0
Hatchery Cr - Sweetwater	200			200	532		03,07,13		0
Eck Cr	200			168	52		04,07		148
Fillmore Lk - Hoffman Cr	200			145	55		05		145
Sarkar - Five Finger Cr	200			145	55		05		145
Sarkar Lakes	200			155	45		00		155
Stikine									
Alpine Ck	200				1		09		199
Andrew Ck	200				3	2	05,06	06	197
Shakes Slough Ck	200				367	214	06-13	01,02,06-09,12	0
Mainstem			144		100	154	01	01,10	
Andy Smith Slough	200				42	40	07-09,11	07-09,11	158
Devil's Elbow	200		58	200	257	311	07-09	01,07-09	0
Fowler Slough	200				61	39	07-12	07-10	139
Porcupine Slough	200		70	200	125	187	07-12	00,01,07-12	13
Katete	200		25		31	31	01,02	01,02	169
Iskut		54	87		199	200	85,86,02,06-09	85,02,06-08	
Verrett River/Slough	200		327	200	242	420	00-03,08,10-14	86,00-03,10,11	0
Iskut m.s. - Craig/Craigson Sl	200		39		38	88	06-08	01,06-08	112
Iskut m.s. -Bronson	200		68	200	101	149	08,09,12	01,08,09	51

Location/Pop	Sample Goal	No. samples 2007		2007 Gap	No. samples 2015		Collection Years		2015 Gap
		US	Can.		US	Can.	US	Canada	
Sl/Bugleg									
Iskut m.s. - Hoodoo Slough	200				10	26	10	10	174
Iskut m.s.- Zappa	200				7	7	08	08	193
Iskut m.s. - Inhini Slough	200								200
Iskut m.s. - Twin	200		23			29		02	171
Christina									
Lake spawners	400		51	200	134	130	84,10-12	84,10-12	266
Inlet spawners	200								200
Scud	200		376	200	402	623	01,07-12	85,87,00,01,07-12	0
Chutine									
Chutine River	200		371	200	348	537	01,08-10	85,00-02,08,09	0
Chutine Lake	200			200	225	258	09,11	09-11	0
Tatalaska Ck	200				50		13		150
Tahltan	400	297	474	200	296	468	90,06	87,96,02	200
Tuya	200		166	200	206	239	08	96,02,07,08	0
Upper Stikine	200					352		96	0
Taku Adjacent									
Chilkat Lake	200	45		155	637		90,07,13		0
Mule Meadows	200	183		17	383		03,07		0
Windfall	200	56		144	432		03,07,14		0
Whiting	200			200	0				200
Taku									
Yehring	200			200	204	109	07,09,11	07,11	0
Fish Ck	200			200	290	107	09,10	10	0
Johnson (US section)	200			200					200
Mainstem					142	126	07,13	07	
Chunk/Bear Sl	200				134	306	09	08,09	0
Shustahini	200				206	210	08,09	00,08,09	0

Location/Pop	Sample Goal	No. samples 2007 US	No. samples 2007 Can.	2007 Gap	No. samples 2015 US	No. samples 2015 Can.	Collection Years US	Collection Years Canada	2015 Gap
Takwahoni/Sinwa	200		31	200	176	211	09-11	00,09-11	0
Tuskwa	200		334	200	414	468	04,08,09	00,04,08,09	0
Yonakina	200		48	200	7	54	11	04,11	146
Yellow Bluff	200				82	81	08,10,11	08,10,11	118
Tulsequah	200		43	200	267	306	07-09	00,07-09	0
King Salmon	400		271	200	216	484	10,11	00,03-05,10,11	0
Inklin									
Little Trapper	400	315	106		270	107	90,91,06	92,04	130
Tatsatua Lake (L. Tatsamenie)	400	400	199		280	388	90,91,11,12	85,87,93,05,11,12	12
Tatsamenie Lake	400	92	151		401	151	92,05,06	92,93	0
Samotua	200			200					200
Hackett	200		91	200	192	292	07-09	85,87,07-09	0
Dudidontu	200			200	7		11		193
Tseta	200			200					200
Nahlin River	200	50	65	150	263	459	03,07,12	04-07,12	0
Silver Salmon R	200				33		08		167
Kuthai Lake	400	202	371		300	372	86,04,06	86,87,04,05	28
Nakina	200			200	10	39	08,09,11,12	08,09,11	161
Alsek Adjacent									
Ahrnklin River	200	94		106	185		03,07		15
Lost/Tahwah Rivers	200	187		13	187		03		13
Situk Lake	200	40		160	648		95,07,13		0
Old Situk	200			160	163		95,07		37
Dangerous	200			200	221		09		0
Italio	200			200	0				200
Akwe	200	40		200	193		09		7
Alsek									
Basin Creek	200			200		45		02,03	155
Tanis (US section)	200			200					200

Location/Pop	Sample Goal	No. samples 2007		2007 Gap	No. samples 2015		Collection Years		2015 Gap
		US	Can.		US	Can.	US	Canada	
Alsek mainstem (US)	200			163					200
Border Slough	200				177	145	07-09,11,12	07-09,11	23
Alsek mainstem (Can)	200			168					200
Tatshenshini									
Lower	200		79	121		121		00-03,10	79
Upper	200		324	100		318		01-03	0
Tats Lake	200			200	13		10		187
O'Connor	200		22	178		96		01-03	104
Sediment Ck	200				13	11	10	10	187
Low fog	200					3		02,03	197
Detour	200		22	178	4	26	11	01,11	174
Kudwat	200		83	117	349	224	00,01,03,07,09-12	01,07,09-11	0
Stinky	200		64	136	40	103	11	01,11	97
Bridge/Silver	200				105	30	11,12	11	95
Kane	200					108		01-03	92
Nesketahin Lk	200			200	298	832	01,07	00-03,07	0
Klukshu	400	355	539	200	775	1059	02,03,06-08,10	92,00-02,07,08	0
Takhanne	200			200		4		02,03	196
Blanchard Lake	200		23	177	178	252	07-09	01-03,07-09	0
Stanley Ck	200					31		01-03	169
Goat Ck	200				42	56	07,11,12	17,12	144
Kwatini	200				85	65	11,13	11	115
Datlaska Ck	200				111		12		89
Vern Ritchie	200				212	217	07-10	07-10	0
Tweedsmuir	200				150	152	07,09-12	03,07,09-12	48

Appendix Table 8. Stikine harvest share status beginning in 2014.

SEPP	**Status**	**Harvest Share**	
		Year	**Status**
2009	Parties Complied	2014	50% (no adjustment)
2010	Parties Complied	2015	50% (no adjustment)
2011	Parties Complied	2016	50% (no adjustment)
2012	Parties Complied	2017	50% (no adjustment)
2013	Parties Complied	2018	50% (no adjustment)
2014	Canada intentionally deviated (reduced egg-take goal)	2019	TBD

Appendix Figure 1.Taku Enhancement Production Plan – 2015 (Signed by TBR Panel Chairs)

2015 TEPP Outline			
Enhancement Project	**Activities**	**Expected Production**	**Technique to document production**
Tatsamenie Lake	Egg take with target of 30% of available brood stock -- goal of up to 2.0 million (Approx. 225K fry for subsequent on-shore / in-lake extended rearing and remainder for lake outplanting)	4,400 adults from out-planting (3.7% green egg – smolt, 6.8% smolt -adult) 1,530 adults from ext. rearing (10% fry - smolt, 6.8% smolt - adult)	Thermal mark
Trapper Lake	Egg take with target of 100,000. Contingent on expectation that barrier modification would be anticipated	250 adults	Thermal mark
		Expected Total Production 6,180	

FEBRUARY 12, 2015

2/12/15

TBR Panel Meeting Portland February 2015

Appendix Figure 2. Stikine Enhancement Production Plan – 2015 (Signed by TBR Panel Chairs)

2015 SEPP Outline			
Enhancement Project	**Activities**	**Expected Production**	**Technique to document production**
Tahltan Lake	Egg take with target of 6 million Guideline for last fishing day will be Sept. 25 (Fry to be planted into Tahltan and/or Tuya lake(s))	100,000 Adults (80% green egg – fry, 25% fry-smolt, 8% smolt-adult)	Thermal mark
		Expected Total Production 100k	

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